621.383

ALOGUE NUMBER NINETEEN

ELECTRICAL EQUIPMENT SUPPLIES

WITH SPECIAL
DEPARTMENTAL
LISTING ON

E G M C

TELEPHONES,
ANNUNCIATORS,
SAMSON BATTERIES,
GAS LIGHTING SUPPLIES

THE ELECTRIC GOODS MFG. CO.

BOSTON, MASS., U. S. A.

ADMINISTRATION BUILDING

Electric Goods Manufacturing Company

(TWENTY-FIVE YEARS THE ELECTRIC GAS LIGHTING CO.)

115 PURCHASE STREET,

BOSTON, MASS.

FACTORY, - - - - CANTON, MASS.

TELEGRAPH CODE.

Telegraph inquiries received by us in code will be replied to in the same manner, not otherwise.

QUOTATIONS.

Vaba	At what price can you furnish?
Vabab	At what price and how soon can you furnish?
Vabad	Wire quotation on
Vabaf	Quote by return mail on
Vabag	Quote us F. O. B. on

ANSWERS ON QUOTATIONS.

Vabe	We quote for immediate acceptance
Vabed	Quotation is F. O. B.
Vabef	Not understood; send fuller particulars.

ORDERS.

Vabi	Ship immediately by express
Vabib	Ship immediately by express C. O. D.
Vabid	Ship immediately by freight
Vabif	Ship immediately by freight with sight draft attached to a bill of lading
Vabig	Send immediately by mail
Vabih	Duplicate our order
Vabik	Enter our order per your quotation of
Vabil	Enter our order for
Vabim	Enter order, shipping directions to follow, for
Vabip	Enter order if you can ship within
Vabir	Cancel order for

ANSWERS ON ORDERS.

Vabo	Cannot accept order at price named for
Vabob	Too late to cancel order for
Vabod	We accept your order for shipment in
Vabof	We have in stock for immediate shipment
Vabog	If ordered at once we can ship
Vaboh	We cannot change order now.
Vabok	Referring to your order for

REGARDING SHIPMENTS.

Vabu	How soon can you ship?
Vabub	Wire us if you cannot ship immediately our order
Vabuc	Have you in stock for immediate shipment?
Vabud	If ordered immediately, how soon can you ship?
Vabuf	Have you shipped our order?
Vabug	What have you shipped on our order?
Vabuh	When will you ship our order?
Vabuk	By what route was our order shipped?
Vabul	Hold shipment of our order
Vabum	Ship what you can and balance soon as possible on our order
Vabun	Ship the whole order in one lot.
Vabup	Trace immediately our order
Vabur	We have shipped all of your order except
Vabus	We have shipped part of your order and will send balance in
Vabut	Your order was shipped by
Vabuw	We have started tracer on your order

INTRODUCTION.

In sending forth this catalogue to our friends we bespeak for it the same cordial reception that has been given its predecessors during our quarter-century of electrical specialization.

With our well-assorted stock of electrical equipment supplies (about $200,000 worth ready for immediate shipment being kept constantly on hand), and our own specialty departments steadily expanding in response to increasing demands, we are now better than ever able to assure adequate, prompt and reasonable service.

Attention is called to our own lines of telephones and annunciators for every contingency, batteries and electric house goods, and electric lighting apparatus for gas and acetylene, because in every case they have been designed to meet actual every-day needs and severe usage, and because in construction and workmanship they are as near practical perfection as knack, skill and every modern appliance can make them. Their moderate price is the result not of inferiority in any respect, but of exceptional factory facilities and large output.

Much care has been taken to make this catalogue of the utmost convenience to our customers. Code words and list numbers have been provided and their use will greatly further the prompt execution of orders.

Our twenty-three year old name, Electric Gas Lighting Company, long outgrown and misleading as to our chief activities, has been replaced by a more appropriate name under which we have been operating the past few months. We take this opportunity again to assure the trade that the same conservative management and perfect-working apparatus that have always indentified our interests with the welfare of our customers are, with larger facilities for everything that makes pleasant and permanent business relations, the most valued assets of—

The Electric Goods Manufacturing Company.

ID 90-B68863 TCF

TELEPHONES.

FOR TWO-STATION, FOR SWITCHBOARD AND FOR MULTIPLE RINGING USE.

No. 21976.
Size 4¼x8¾ in.

THE STAYRITE.

(Not intended for use with Switchboard.)

A practical, but inexpensive telephone; has permanent magnet receiver, induction coil, self-contained switch and all soldered connections. We also furnish an outfit containing four dry batteries, wire, tacks, tape, etc. Complete constructions for installation with every pair.

Styles in Stock.—Oak finish, for No. 9, No. 10 or No. 11 wiring. (See index.)

Code Word.	List No.		List Price, Per Pair.
Zabofat	21976	1 Pair Stayrite Telephones	$10.00
Zabofav	21977	12 Pair Stayrite Telephones	9.50
Zabofaw	21978	1 Pair Stayrite Telephone outfits	11.50
Zabofax	21979	12 Pair Stayrite Telephone outfits	11.00

No. 21980.
Size 3½x7¼ in.

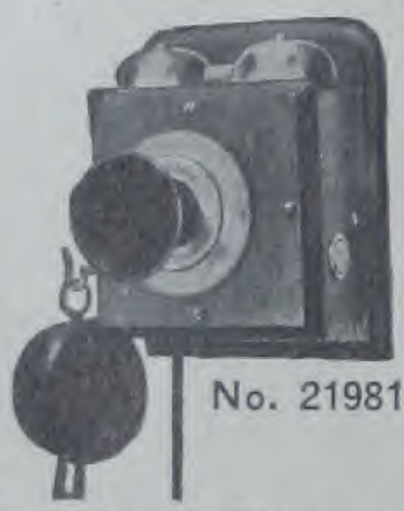
NO. 250 SAMSON JUNIOR BUZZER CALL.

A small, neat instrument for two station hotel and school use; fitted with Samson Junior Transmitter and Receiver. Supplied only with buzzer call and black enamel case. This telephone is very desirable where the loud tone of double gongs is objectionable.

Styles in Stock.—Black finish, for No. 9, No. 10, No. 11, No. 12 and No. 13 wiring. (See index.)

Shipped from Factory.—Immediate delivery in black for No. 2, No. 3, No. 5, No. 6, No. 14, No. 15 and No. 16 wiring diagrams. (See index.)

Zabofay	21980	Samson Junior Telephone Buzzer Call	7.00



No. 21981.
Size 5x5¾ in.
Also Furnished With Long Receiver.

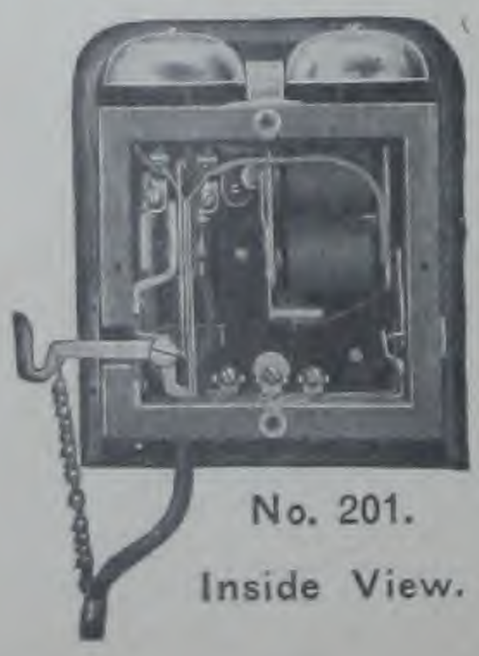
NO. 201 SAMSON JUNIOR.

LONG OR SHORT RECEIVER.

A well made phone, solid back transmitter, strong permanent watchcase receiver, non-turnable gongs, self-contained switch hook, coin silver riveted contacts, permanently adjusted bell, induction coil, non-turnable lug binding posts, separate receiver cord clips, non-short-circuiting cutout chain on receiver.

Styles in Stock.—Oak finish, for No. 9, No. 10, No. 11, No. 12 and No. 13 wiring. (See index.)

Shipped from Factory.—Immediate delivery in oak for No. 2, No. 3, No. 5, No. 6, No. 14, No. 15 and No. 16 wiring. (See index.) Orders for other woods than oak necessitate a few days' delay.



No. 201.
Inside View.

Zabofaz	21981	Samson Junior Phone, Watchcase Receiver, oak	7.00
Zabofe	21982	Long Receiver and Hook, extra	.50
Zabofeb	21983	Samson Long Distance Transmitter, extra	1.00
Zabofec	21984	Short Adjustable Arm, extra	1.00
Zabofed	21985	Special finishes, extra	1.00
Zabofef	21986	20 ohm bells for No. 14 wiring, extra	.50

TELEPHONES.

No. 11149.

NO. 751 SAMSON STEEL BOX STYLE.

The internal mechanism of this instrument is encased in a stamped steel case, with a baked black enamel finish, which is not affected by either heat or moisture, making a telephone which is practically indestructible. The transmitter, receiver, hook and induction coil are highest grade. For use in connection with the Annunciphone or Rotokoll Switchboard described on other pages; for hotel, factory, institution or similar installations it is unsurpassed.

Styles in Stock. Not in Stock.

Shipped from Factory. Prompt delivery in black enamel finish for No. 2, No. 3, No. 5, No. 6, No. 9, No. 10, No. 11, No. 12, No. 13, No. 14, No. 15 and No. 16 wiring. (See Index.)

Code Word.	List No.		List Price, Each.
Zabower	**11149**	Metal Telephone	**$10.00**
Zabowes	**11150**	Metal Telephone, with adjustable arm, extra.	**1.00**
Zabowet	**11151**	With 20-ohm bells for No. 14 wiring, extra..	**.50**

No. 11152.

Size 6x7 in.

NO. 701 SAMSON TELEPHONE.

The Samson Telephone is the highest development in the art. It is equipped with the Samson solid back dampproof mirror carbon transmitter, long receiver of exceptional strength and longevity, Samson self-contained combined bracket and escutcheon, roller bearing false circuit proof switch, anti-short circuiting cut-out chain on receiver, cast gongs, protected hammer ball, non-turnable lug binding posts, permanent adjustment bell contained in a cabinet made dustproof and bugproof by sliding escutcheons on receiver hook and hammer rod, cabinet locked with a special locking device.

Interior View of No. 11152.

Styles in Stock. Antique oak finish for No. 9, No. 10, No. 11, No. 12 and No. 13 wiring. (See Index.)

Shipped from Factory. Prompt delivery in oak for No. 2, No. 3, No. 5, No. 6, No. 14, No. 15 and No. 16 wiring. (See Index.) Orders for other woods than oak necessitate a few days' delay.

Zabowev	**11152**	Samson Telephone	**10.00**
Zabowew	**11153**	Special finishes, extra	**1.00**
Zabowex	**11154**	With 20-ohm bells for No. 14 wiring	**.50**

No. 11155.

Size 5¼x7½ in.

FLUSH WOOD AND METAL TELEPHONE.

Refinement of detail and symmetry of design are apparent in both telephone and outlet box. In our Flush Metal and Flush Wood Telephone the carefully protected hammer rod, the hook so made that the receiver cannot touch the plaster, the neatly engraved push, all show the effort made to attain perfection. Our finish on both wood and metal styles is unsurpassed. The chain safety device, which cuts out the talking battery should the receiver be left hanging, is incorporated in this phone as in all other phones. The telephone is usually finished in brush brass.

Styles in Stock. Not in Stock.

Shipped from Factory. Prompt shipments in antique oak and brush brass finish for No. 2, No. 3, No. 5, No. 6, No. 9, No. 10, No. 11, No. 12, No. 13, No. 14, No. 15 and No. 16 wiring. (See Index.) Orders for other woods than antique oak or brush brass metal finish necessitate a few days' delay.

Zabowey	**11155**	No. 401 metal flush telephone, brush brass...	**10.00**
Zabowez	**11156**	No. 411 wood flush telephone, oak	**10.00**
Zabowi	**11157**	For special finishes (except in quantities), extra	**1.00**
Zabowib	**11158**	With Samson Long Distance Transmitter, extra	**1.00**
Zabowic	**11159**	With Short Adjustable Arm Transmitter, extra	**1.00**
Zabowid	**11160**	With 20-ohm bells for No. 14 wiring, extra..	**.50**

No. 11161.

Recess for Box, 3¾x6 in.

NO. 401 "UNIVERSO" IRON OUTLET BOX.

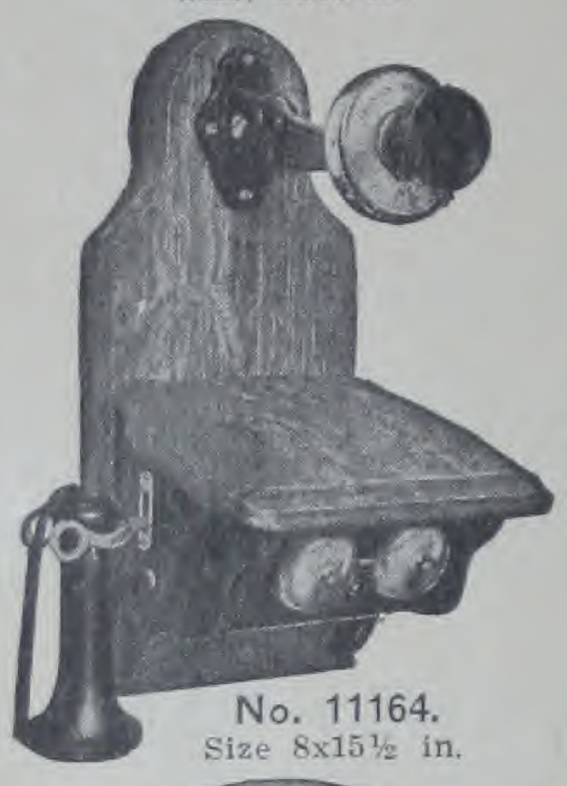
In connection with the above telephone, this box makes a unified whole. It is a universal box for either old or new work. In new work it is installed in the usual way between the studs, and in old work attached to the lath through the plaster. The reversible lug shown in cut enables the screw to be firmly attached to the lath in old work at a distance of ½ inch from the edge of the hole in the plaster, a valuable advantage, as the repeated action of placing the receiver on the hook tends to loosen the screws in the imitations. Three cable outlets having "Knock-out" plugs will be found in each box.

Styles in Stock. Not in stock.

Shipped from Factory. Immediate delivery. Customers should place orders for telephones when Outlet Boxes are ordered, stating date for delivery of phones.

Zabowif	**11161**	"Universo" Iron Outlet Box, including Lugs..	**1.00**

No. 11162.
Size, 5x10 in.



No. 11164.
Size 8x15½ in.

Size 12x12 in.
Weatherproof Telephone.

No. 11165.

Special.

TELEPHONES.

NO. 231 SAMSON JUNIOR TELEPHONE.

This Telephone is made with Long Arm Adjustable Transmitter. The gongs are arranged on the front of the case; the instrument is fitted with long receiver. It is a popular style of telephone in black enamel finish.

Styles in Stock. Not in stock.

Shipped from Factory.—Prompt deliveries in black enamel or oak finish for Nos. 2, 3, 5, 6, 9, 10, 11, 12, 13, 14, 15 and 16 wiring. (See Index.)

Code Word.	List No.		List Price, Each.
Zabowig	11162	No. 231 in oak or black enamel..	**$9.00**
Zabowih	11163	With Samson Long Distance Transmitter, extra	**1.00**

NO. 711 FACTORY TELEPHONE.

This Telephone is the same in style as our No. 212 Polarized Ringer, but is fitted with Vibrating Bells. It makes a strong, durable instrument for factory use. It is dust and bug proof, is fitted with the Samson long distance adjustable arm transmitter, long roller bearing anti-false circuit hook, permanent adjustment bells, long receiver and shelf for taking notes.

Styles in Stock. Not in stock.

Shipped from Factory.—Prompt delivery is made in Nos. 2, 3, 5, 6, 9, 10, 11, 12, 13, 14, 15 and 16. (See Index.)

Zabowik	11164	No. 711 Factory Telephone.....	**13.00**

SAMSON WEATHERPROOF TELEPHONE.

This is the same Telephone as furnished by us for the steamships "Minnesota" and "Dakota" of the Great Northern Steamship Company, except that the case is made of black enameled iron instead of composition. It can be used with either our Annunciphone or our Rotokoll Switchboard Systems, as an out-of-door station, in which case the number of buttons shown in the illustration is reduced, or as a common-talking, intercommunicating system (Diagram No. 17), up to 7 stations, as shown in the cut. The internal apparatus is protected from moisture, rain or sleet when the door is either open or closed. The talking battery circuit is completed by the opening of the door. The cable enters the telephone by means of an iron pipe, which is threaded into the box.

Special prices on application.

THE "WATITE" WATERPROOF BELL.

This Bell is strictly watertight and is of adopted navy type. It is made with either 3-inch or 5-inch gong, and can be made in larger sizes if preferred.

Zabowil	11165	3-inch "Watite" Bell.....	**10.00**
Zabowim	11166	5-inch "Watite" Bell.....	**14.00**

SPECIAL TELEPHONES.

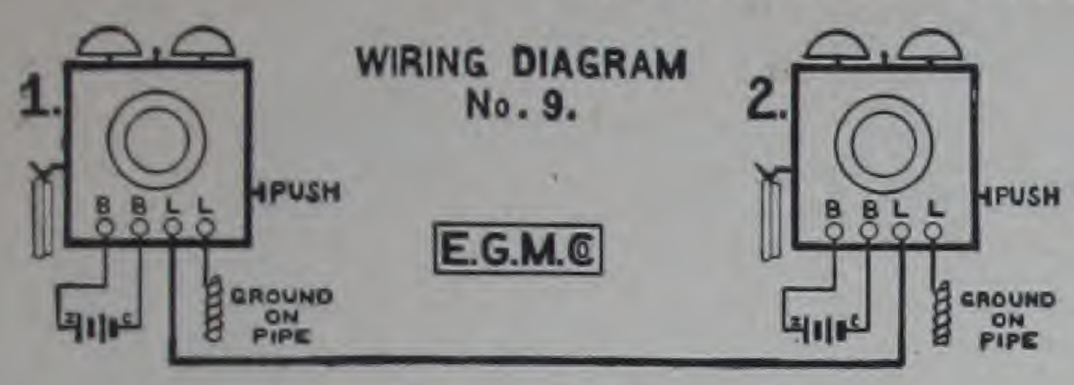
Owing to our exceptional factory facilities and the experience of our telephone experts in special work we are prepared to furnish telephones for special or unusual purposes. Inform us of your requirements and we will submit sketches and wiring diagrams. The Telephone shown in the cut was built for a rifle range, where communication from any point over a distance one-half mile apart was required. This instrument was so constructed that it could be hooked on to a pair of wires which had been installed over a distance.

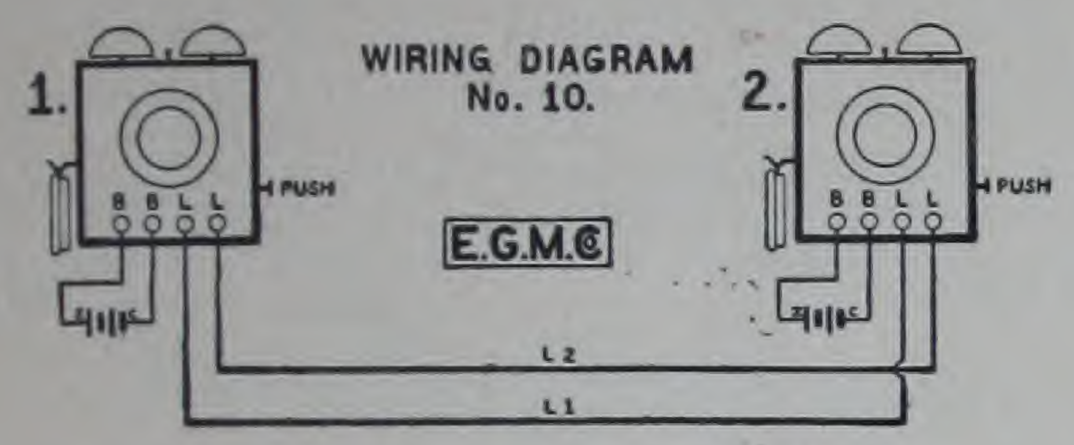
Special prices on receipt of information.

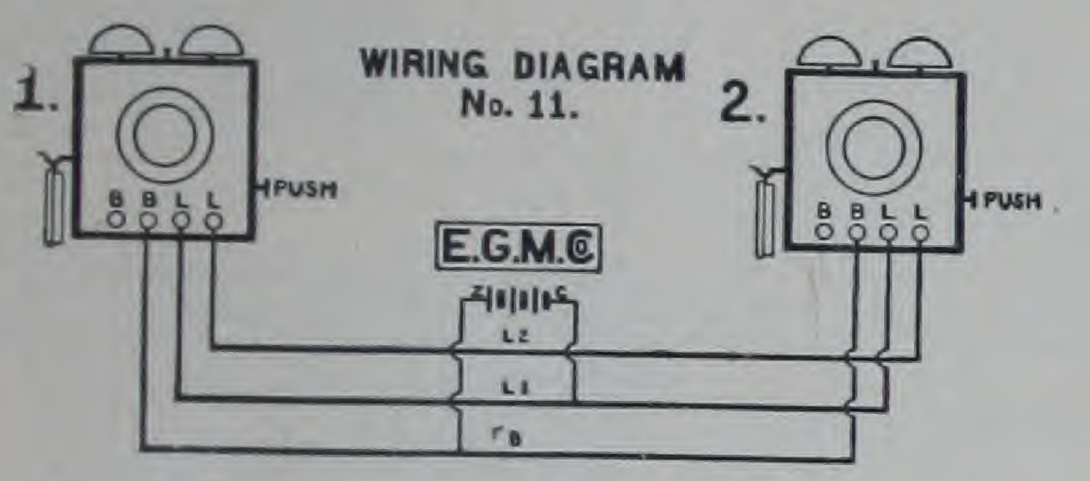
REPAIRS ON TELEPHONES.

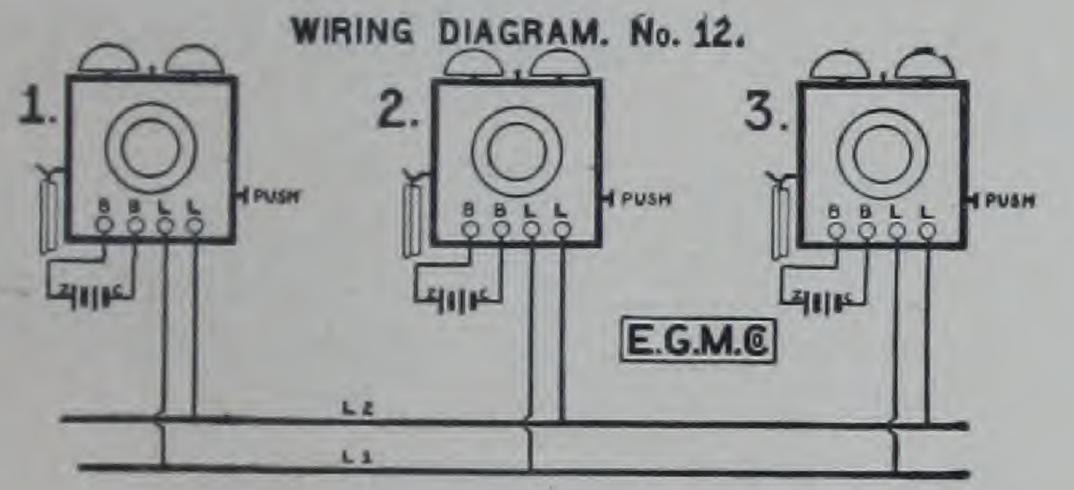
We are prepared to repair Telephones of all makes in a workmanlike manner at reasonable prices. We keep a special corps of thoroughly competent workmen for this purpose.

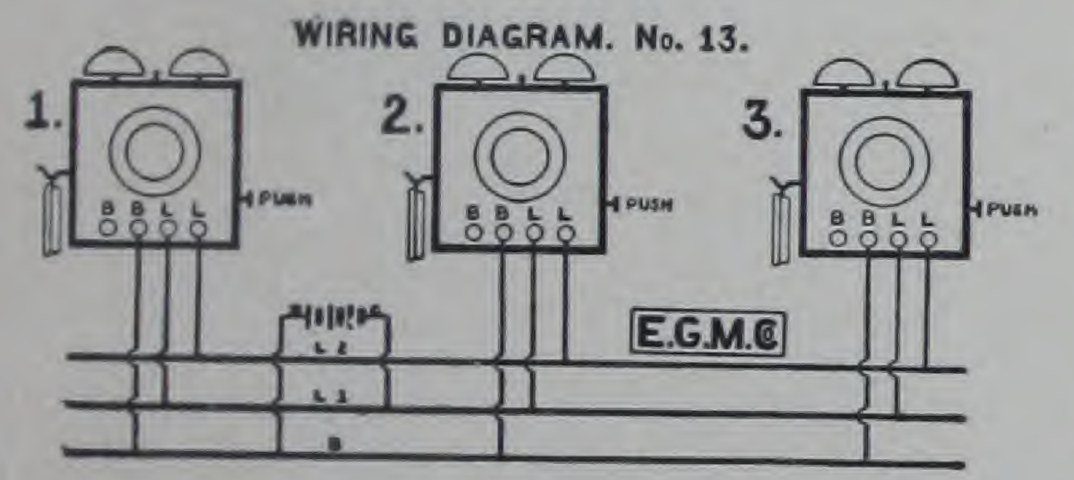
WIRING DIAGRAMS.

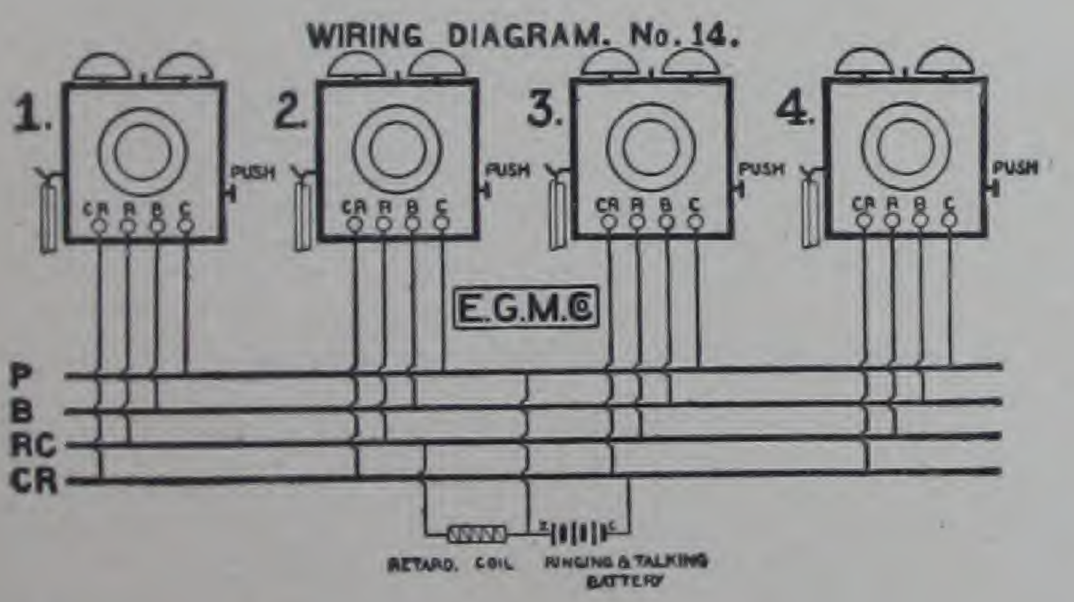












Telephones Nos. 201, 250, 221, 231, 401, 411, 701, 711, "Stayrite," and No. 130 Desk Stand, can be supplied to operate in connection with wiring diagrams shown on this page.

NO. 9.

TWO STATION, LOCAL BATTERY.

Ground return through gas or water pipe.

NO. 10.

TWO STATION, LOCAL BATTERY.

Circulars on the Stayrite Telephones are very complete in directions for installing. Mailed on request.

NO. 11.

TWO STATION, CENTRALIZED BATTERY.

Use 3 Conductor Samson Cable.

NO. 12.

LOCAL BATTERY, CODE RINGING, COMMON TALKING.

All bells ring when signalling.

NO. 13.

CENTRALIZED BATTERY, CODE RINGING, COMMON TALKING.

All bells ring when signalling.

Use 3 Conductor Samson Cable.

NO. 14.

CODE RINGING, COMMON TALKING.

All bells ring when signalling.

The advantage of this wiring for a code ringing system is that the talking circuit does not pass through the bells, as in the No. 12 and No. 13.

Retardation Coil must be used.

CAUTION.—Do not cut out these diagrams. Copies will be mailed on application and are sent with Telephones.

TELEPHONES.

INTERCOMMUNICATING SYSTEMS.

"LENOX" COMMON TALKING TYPE, SELECTIVE RINGING.

Only one pair can talk at a time.

No. 46411.
Also furnished with Long Receiver.

An inexpensive system for residence, store, school and other locations where use is infrequent and not over 12, or, at the most, 16 stations are to be installed. Carried in stock up to 12 button, in golden oak, with numbered buttons. Prompt factory deliveries are made in other woods, or with buttons having stamped names.

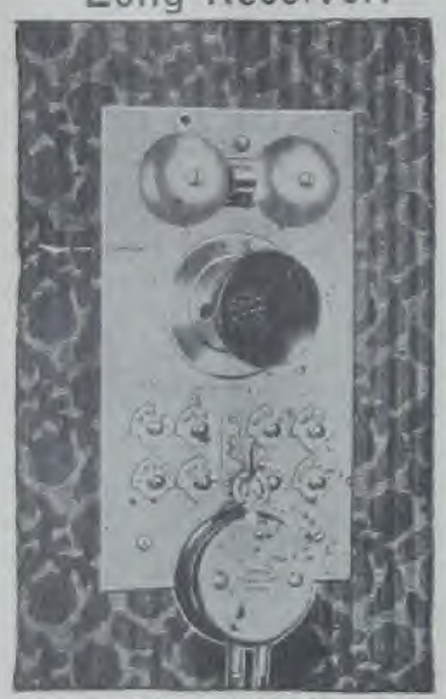
Use our "Bi-Plan" back boards for raising 'phone in exposed wiring.

We do not advise omitting the home station number, as it results in confusion when additional telephones are ordered.

All necessary apparatus for this system will be found on this and the succeeding page.

NO. 351—SAMSON JUNIOR CABINET TYPE.

Code Word.	List No.		List Price, Each.
Zufe	46408	4-button	$10.00
Zufeb	46409	8-button	11.00
Zufec	46410	12-button	12.00
Zufed	46411	16-button	13.00
Zufef	46412	Bi-Plan backboards for any size	.60
Zufef	45614	Retardation Coil (1 required for each system)	3.00
Zufeg	45615	Special woods other than oak ... extra.	1.00
Zufek	45617	With long receiver ... extra.	.50
Zufel	45618	With Samson Long Distance Transmitter ... extra.	1.00
Zufem	45619	With short Adjustable Arm ... extra.	1.00
Zufen	45620	Stamping names, extra per letter	.03



No. 45622.

SAMSON JUNIOR FLUSH TYPE.

Flush telephones in the more important rooms of a residence, finished to match woodwork or hardware, give a most beautiful effect.

No. 421.				No. 451.			
Zufet	45621	4-butt. Brush Brass		Zufi	45625	Oak	13.00
Zufev	45622	8-butt. Brush Brass		Zufib	45626	Oak	14.00
Zufew	45623	12-butt. Brush Brass		Zufid	45627	Oak	15.00
Zufex	45624	16-butt. Brush Brass		Zufif	45628	Oak	16.00

Special finished in wood or metal, extra, $1.00.
Not in stock, but factory makes quick shipment.
For extras see cabinet style above.

No. 45631.

WALL BOXES FOR ABOVE.

We furnish either tin or cast iron wall baxes. Tin boxes are fastened to the side of the wood back, and the telephone is attached to the wall by four screws placed in the corners. When cast iron boxes are used (which are furnished with "knock-outs" for iron pipe) the boxes are installed during construction of the building and the telephones attached to the box on its completion by three machine screws, as shown in the illustration. When cast iron boxes are to be used, the telephones must be ordered at the same time, but shipment of the telephones will be made on any date specified. Cast iron boxes up to 8 button in stock. Factory makes immediate shipment of larger sizes.

Zufig	45630	4-Butt. Tin Box.	.30	Zufim	45634	Cast Iron.	.80
Zufih	45631	8-Butt. Tin Box.	.40	Zufin	45635	Cast Iron.	.90
Zufik	45632	12-Butt. Tin Box.	.50	Zufip	45636	Cast Iron.	1.00
Zufil	45633	16-Butt. Tin Box.	.60	Zufir	45637	Cast Iron.	1.10

No. 45638.

NO. 134—DESK STAND (Buttons in Base).

We do not advocate this style, owing to the liability of the flexible cord breaking from constant twisting, or an accidental fall of the stand. Each instrument is furnished with 5 feet of green silk cord and with terminal block.

WITH CORD AND TERMINAL BLOCK.

Zufis	45638	4-button	18.00
Zufit	45639	8-button	19.00
Zufiv	45640	12-button	20.00
Zufiy	45613	16-button	21.00
Zufiw	45641	Samson Long Distance Transmitter, extra	1.00
Zufix	45642	Buzzer on Terminal Block, extra	.70
Zufiz	45643	Bell on Terminal Block, extra	1.20

TELEPHONES.

INTERCOMMUNICATING SYSTEMS.

"LENOX" COMMON TALKING TYPE, SELECTIVE RINGING.

Only one pair can talk at a time.

No. 45644.

NO. 131—DESK STAND (Buttons Separate).

This stand is not complete without the Push Button Block listed below. Price, however, includes terminal block and 5 feet of green silk cord. No bell or buzzer is included in price. Contractor supplies same, or they can be attached to terminal block at prices named. All terminals are plainly marked according to diagram.

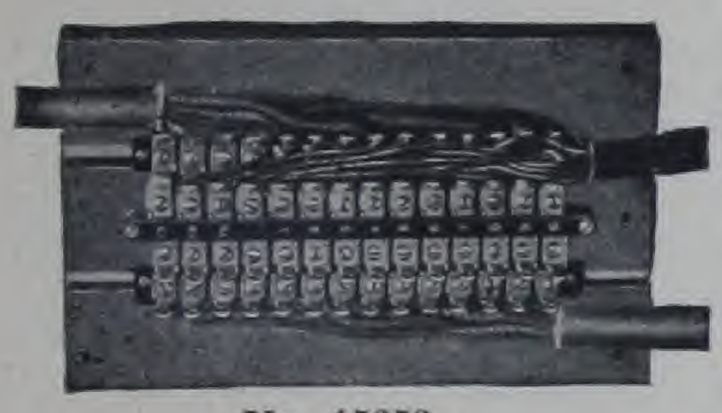
Code Word.	List No.		List Price, Each.
Zufo	**45644**	No. 131 Desk 'Phone, Cord and Terminal Block.....	**$15.00**
Zufob	**45615**	Terminal Block, with buzzer attached.....	**.70**
Zufod	**45646**	Terminal Block, with bell attached.....	**1.20**
Zufof	**45647**	Samson Long Distance Transmitter, extra.....	**1.00**

For different styles of desk stand holders see necessary pages.

No. 45648.

NO. 248 PUSH BUTTON BLOCKS.

Zufog	**45648**	4 Button numbered.....	**1.20**
Zufoh	**45619**	8 Button numbered.....	**2.20**
Zufok	**45650**	12 Button numbered.....	**3.90**
Zufol	**45651**	16 Button numbered.....	**4.90**
Zufon	**45652**	Stamping names, per letter.....	**.03**



No. 45658.

NO. 1 "SAFEGUARD" JUNCTION BOX.

Saves time in wiring and furnishes rapid means of testing wherever you make a "tap." The best and only device of its kind, giving a safer connection than soldering, as is frequently done. Cover is also furnished. Four terminals are on each connecting strip, providing "taps" for two cables. For concealed work, place in wooden box between studding, with door for inspection. Four terminal strips; three for common return, and one for spare, are furnished. Consult description, page 55.

Zufot	**45657**	For 8 stations.....	**2.00**
Zufov	**45658**	For 12 stations.....	**3.00**
Zufow	**45659**	For 16 stations.....	**4.00**

RETARDATION COIL.

Zufos	**45656**	1 Coil required for each system.....	**3.00**

No. 45656.

"SAFEGUARD" CABLE.

This cable is made in dampproof and waterproof types. In the former, the first winding on the conductors is weatherproof, then a designating color braid. The conductors after cabling are wound with a double layer of paraffined paper, a weatherproof braid, and then an oak colored cotton braid. The saving in labor and copper over open wiring is pronounced. In the waterproof, the conductors are first rubber covered, then wound with two layers of tape, with an outer braided weatherproof. This cable has three common wires, and one spare. See pages 60 and 61 for complete description.

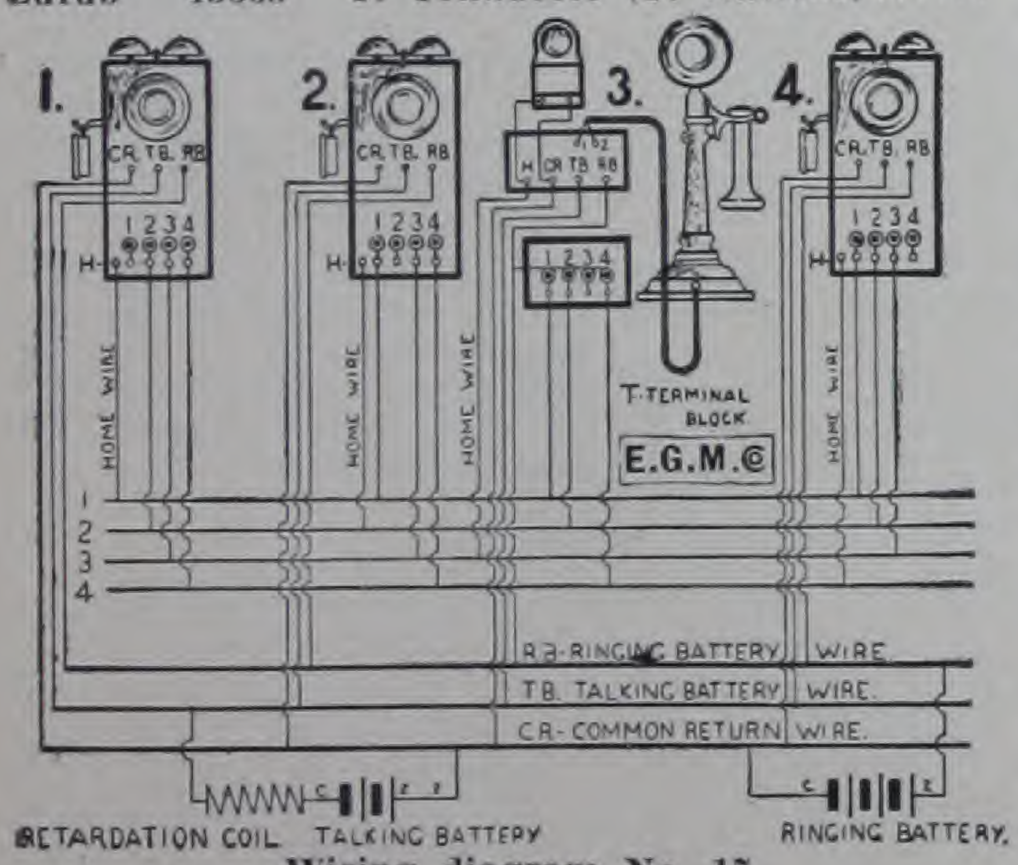
DAMPPROOF.

		No. 45663.	Ft. to lb.	Per lb.
Zufox	**45660**	8 Conductor (4 stations).....	8	**.80**
Zufoz	**45661**	12 Conductor (8 stations).....	6	**.80**
Zufu	**45662**	16 Conductor (12 stations).....	5	**.80**
Zufub	**45663**	20 Conductor (16 stations).....	4½	**.80**

WATERPROOF.

		No. 45666.	Per Ft.
Zufud	**45664**	8 Conductor..	**.20**
Zufuf	**45665**	12 Conductor..	**.24**
Zufug	**45666**	16 Conductor..	**.30**
Zufuh	**45667**	20 Conductor..	**.34**

Reels charged at cost and credited when returned.



Wiring diagram No. 17.

NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The slightest crack in the wax top allows the moisture to escape, resulting in a "dead" cell. Low amperage or voltage in one cell reduces all cells to the same output. The results from the use of the No. 3 are phenomenal. Send for test chart made on actual work.

Zufuh **45668** No. 3 Samson Battery, per cell. **2.00**

No. 45668.

NO. "17" WIRING DIAGRAM.

Use as many wires as there are stations plus three common wires. If you use "Safeguard" Cable, "Safeguard" Distributing Boxes and No. 3 Samson Batteries, you will secure perfect operation, thereby increasing your reputation on telephone work.

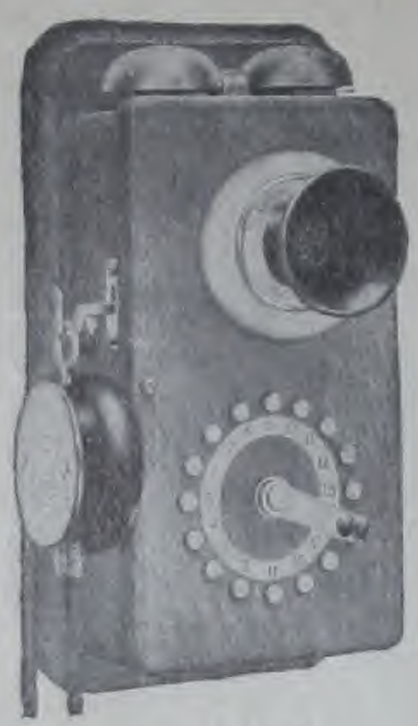
CAUTION.—Do not cut out this diagram. Large ones are mailed on application and sent with every system.

TELEPHONES.

INTERCOMMUNICATING SYSTEMS.

"HUB" SWITCH ARM TYPE. NON-INTERFERING.

Any Number of Pairs Can Talk at One Time.



No. 21257.
Also furnished with Long Receiver.

This is our lowest priced non-interfering telephone system, and is adaptable for business, school, factory and similar uses. When a station receives a call the switch arm must be placed on the point marked "H" before conversation can take place (see the "Simplan" Automatic in which this is overcome).

The No. 391 is made in multiples of 4 switch points marked "H 1 to 4" and "H 1 to 8." We do not advise omitting the "home" station number, as it results in confusion when additional telephones are ordered. For the same system names of stations up to 8 can be stamped on the back of a watch case receiver. This style is carried in stock in all sizes in golden oak. In other finishes prompt delivery is made. The "Bi-Plan" back board used where exposed wiring is installed is advantageous. (See index for description.)

All necessary apparatus for this system will be found on the opposite page.

Code Word.	List No.		List Price, Each.
Zacimol	22640	4 Point	$10.00
Zabixix	21256	8 Point	11.00
Zabixiy	21257	12 Point	12.00
Zabixiz	21259	16 Point	13.00
Zacimom	22641	20 Point	14.00
Zacimon	22642	"Bi-Plan" backboard for either style	.60
Zabixo	21259	Special woods other than oak, extra	1.00
Zabixob	21260	With long receiver, extra	.50
Zabixoc	21261	With Samson long distance transmitter, extra	1.00
Zabixod	21262	With short adjustable arm, extra	1.00
Zabixof	21263	Stamping names on back of reciver, per letter, extra	.03

No. 21264.

NO. 135 DESK STAND.

SWITCH POINTS IN BASE.

We do not advocate this style, owing to the liability of the flexible cord breaking from constant twisting or accidental fall, but supply some simply to meet demand. Each instrument is furnished with 5 feet of green silk cord and with terminal block.

Zabixog	21264	4 Point	18.00
Zabixoh	21265	8 Point	19.25
Zacimop	22613	12 Point	20.50
Zacimor	22644	16 Point	21.75
Zacimos	22645	20 Point	23.00
Zabixok	21266	Samson long distance transmitter, extra	1.00
Zabixol	21267	Buzzer on terminal block, extra	.70
Zabixom	21268	Bell on terminal block, extra	1.20

No. 21269.

NO. 132 DESK STAND.

SWITCH BLOCK SEPARATE.

This stand is not complete without the switch block listed below. The price of the stand, however, includes terminal block and 5 feet of green silk cord. No bell or buzer is included in price. Contractors supply same or they can be attached to terminal block at prices named. All terminals are plainly marked according to diagram.

Zabixon	21269	No. 132 desk stand, nickel plated	15.00
Zabixop	21270	Terminal block, with buzzer attached, extra	.70
Zabixor	21271	Terminal block with bell attached, extra	1.20
Zabixos	21272	Samson long distance transmitter, extra	1.00

For desk stand holders see succeeding pages.

No. 21273.

NO. 245 SWITCH BLOCK.

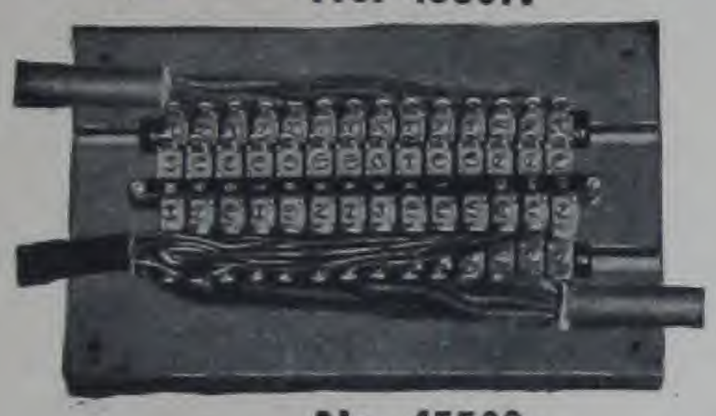
This is used in connection with the above desk stand and is provided with push button for calling stations.

Zacimot	22646	4 Point	1.50
Zacimov	22647	8 Point	2.00
Zabixot	21273	12 Point	2.50
Zabixov	21274	16 Point	3.00
Zacimow	22648	20 Point	3.50

TELEPHONES.

INTERCOMMUNICATING SYSTEMS.

No. 45567.



No. 45569.

Any number of pairs can talk at one time.

"HUB" SWITCH ARM TYPE, NON-INTERFERRING.

NO. 243 CIRCULAR DESK SWITCH BLOCK.

A well designed means of attaching a switch block to a rolltop desk. The bracket is strongly made and does not effect the raising of the roller portion of the desk.

Code Word.	List No.		List Price, Each.
Zacipox	**45521**	4 Point	**$3.50**
Zacipoy	**45522**	8 Point	**3.75**
Zacipoz	**45523**	12 Point	**4.00**
Zudos	**45566**	16 Point	**4.50**
Zudot	**45567**	20 Point	**5.00**

NO. 1 "SAFEGUARD" JUNCTION BOX.

Saves time in wiring and furnishes rapid means of testing wherever you make a "tap." The best and only device of its kind, giving a safer connection than soldering, as it is frequently done. Cover is also furnished. Four terminals are on each bar, providing "taps" for two cables. For concealed work, place in wooden box between studding, with door for inspection. Four terminal strips, three for common returns and one for spare, are furnished. Consult description, page 55.

Zudov	**45568**	For 8 stations	**2.00**
Zudow	**45569**	For 12 stations	**3.00**
Zudox	**45570**	For 16 stations	**4.00**
Zudoz	**45571**	For 20 stations	**5.00**

"SAFEGUARD" CABLE.

This Cable is made in damp-proof and water-proof types. In the former, the first winding on the conductor is weather-proof, then a designating color braid. The conductors after cabling are wound with a double layer paraffined paper, a weather-proof braid, and then an oak colored cotton braid. The saving in labor and copper over open wiring is pronounced. In the water-proof, the conductors are first rubber covered, then wound with two layers of tape, with an outer braided weather-proof. This cable has three common wires and one spare. See pages 60 and 61 for complete description.

DAMP-PROOF.

No. 45572.

			Feet to Lb.	Per Lb.
Zudu	**45572**	8 Conductor (4 sta.).	8	**.80**
Zudub	**45573**	12 Conductor (8 sta.).	6	**.80**
Zuduc	**45574**	16 Conductor (12 sta.).	5	**.80**
Zudud	**45575**	20 Conductor (16 sta.).	4½	**.80**
Zuduf	**45651**	24 Conductor (20 sta.).	4	**.80**

WATER-PROOF.

No. 45576.

			Per Ft.
Zudug	**45576**	8 Conductor	**.20**
Zuduh	**45577**	12 Conductor	**.24**
Zuduk	**45578**	16 Conductor	**.30**
Zudul	**45579**	20 Conductor	**.34**
Zacipu	**45152**	24 Conductor	**.40**

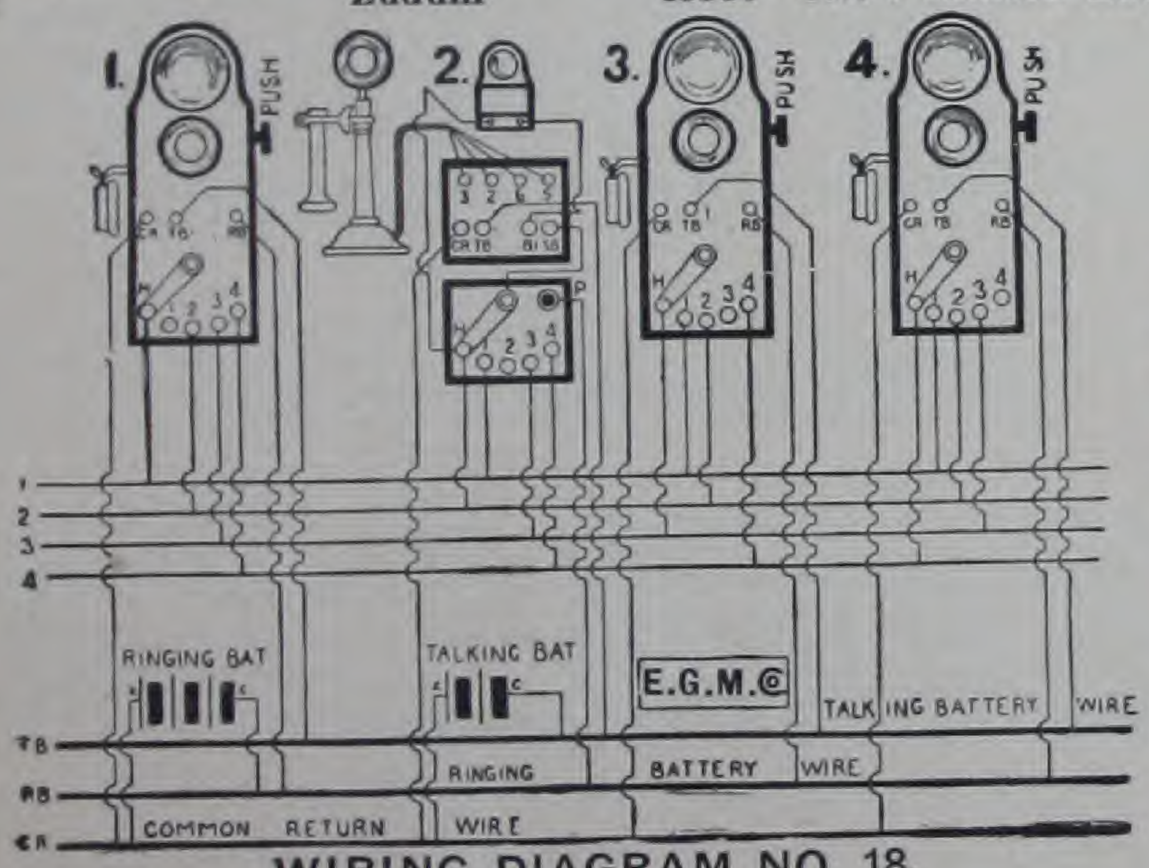
Reels charged at cost and credited when returned.

No. 45580.

NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The slightest crack in the wax top allows the moisture to escape, resulting in a "dead" cell. Low amperage or voltage in one cell reduces all cells to the same output. The results from the use of the No. 3 are phenomenal. Send for test chart made on actual work.

Zudum	**45580**	No. 3 Samson Battery, per cell	**2.00**



WIRING DIAGRAM NO. 18.

NO. 18 WIRING DIAGRAM.

Use as many wires as there are stations plus three common wires. If you use "Safeguard" Cable, "Safeguard" Distributing Boxes and No. 3 Samson Batteries, you will secure perfect operation, thereby increasing your reputation on telephone work.

CAUTION—Do not cut out this diagram. Large ones are mailed on application and sent with every system.

TELEPHONES.

INTERCOMMUNICATING SYSTEMS.

NON-INTERFERING.

"ESSEX" PLUG AND JACK TYPE.

Any Number of Pairs Can Talk at One Time.

Some users prefer the Plug Intercommunicating Telephone System. It also has the advantage that, by using an additional plug, a three-sided conversation can be easily carried on. Jacks are now arranged in rows of four, whether numbered or named. We do not advise omitting the "home" station number, as it results in confusion when additional telephones are ordered. All necessary apparatus for this system will be found on this and the succeeding pages. This style telephone is not carried in stock, but factory makes prompt shipment in oak wood.

Use our "Bi-Plan" Backboards for raising 'phone for exposed wire.

No. 45851.
Also furnished with Long Receiver.

NO. 381 SAMSON JUNIOR.

Code Word.	List No.		List Price, Each.
Zuhum	45852	4 Jack numbered	$11.00
Zuhun	45850	8 Jack numbered	12.00
Zuhup	45851	12 Jack numbered	13.00
Zuhur	45853	16 Jack numbered	14.00
Zuhus	45854	20 Jack numbered	15.00
Zuhut	45855	Stamping names, extra per letter	.03
Zacinid	22831	"Bi-Plan" backboards of either size	.60
Zuhuz	45859	Special woods other than oak, extra	1.00
Zuka	45860	With Long Receiver, extra	.50
Zukab	45861	With Samson Long Distance Transmitter, extra	1.00
Zukad	45862	With Short Adjustable Arm, extra	1.00

No. 45747.

NO. 132 DESK STAND (Plug Block Separate).

This stand is not complete without the plug block listed below. The price of the stand, however, includes a terminal block and 5 feet of green silk cord. No bell or buzzer is included in price. Contractors supply same, or they can be attached to terminal block at prices named. All terminals are plainly marked according to diagram.

Zugot	45747	No. 132 Desk Stand, nickel-plated	15.00
Zugov	45748	With Terminal Block and Buzzer attached, extra	.70
Zugow	45749	With Terminal Block and Bell attached, extra	1.20
Zugox	45750	Samson Long Distance Transmitter, extra	1.00

For Desk Stand Holders see succeeding pages.

No. 45757.

NO. 246 JACK BLOCK.

Zuguf	45755	4 Jacks numbered	2.00
Zugug	45756	8 Jacks numbered	2.50
Zuguh	45757	12 Jacks numbered	3.00
Zuguk	45758	16 Jacks numbered	3.50
Zugul	45759	20 Jacks numbered	4.00
Zugum	45760	Stamping names, per letter	.03

TELEPHONES.

INTERCOMMUNICATING SYSTEMS—Continued.

ESSEX NON-INTERFERING PLUG AND JACK TYPE.

NO. 1 "SAFEGUARD" JUNCTION BOX.

No. 45554.

Saves time in wiring and furnishes rapid means of testing wherever you make a "tap." The best and only device of its kind; giving a safer connection than soldering as it is frequently done. Cover is also furnished. Four terminals are on each bar, providing "taps" for two cables. For concealed work place in wooden box between studding, with door for inspection.

Four terminal strips, three for common return and one for a spare, are furnished.

Consult detail descriptions. (See index.)

Code Word.	List No.		List Price.
Zudiz	45553	For 8 stations	$2.00
Zudo	45554	For 12 stations	3.00
Zudob	45555	For 16 stations	4.00
Zudod	45556	For 20 stations	5.00

"SAFEGUARD" CABLE.

No. 45560.

This cable is made in dampproof and waterproof types. In the former the first winding on the conductors is weatherproof, then a designating color braid. The conductors after cabling are wound with a double layer paraffined paper, a weatherproof braid and then an oak colored cotton braid. The saving in labor and copper over open wiring is pronounced. In the waterproof the conductors are first rubber covered, then wound with two layers of tape, with an outer braided weatherproof. This cable has three common wires and one spare wire. See pages 60 and 61 for complete description.

No. 11056.

No. 45561.

DAMP-PROOF CABLE.

			Feet to Lb.	Per Lb.
Zudof	45557	8 Cond. (4 stations)	8	.80
Zudog	45558	12 Cond. (8 stations)	6	.80
Zudoh	45559	16 Cond. (12 stations)	5	.80
Zudok	45560	20 Cond. (16 stations)	4½	.80
Zudom	45562	24 Cond. (20 stations)	4	.80

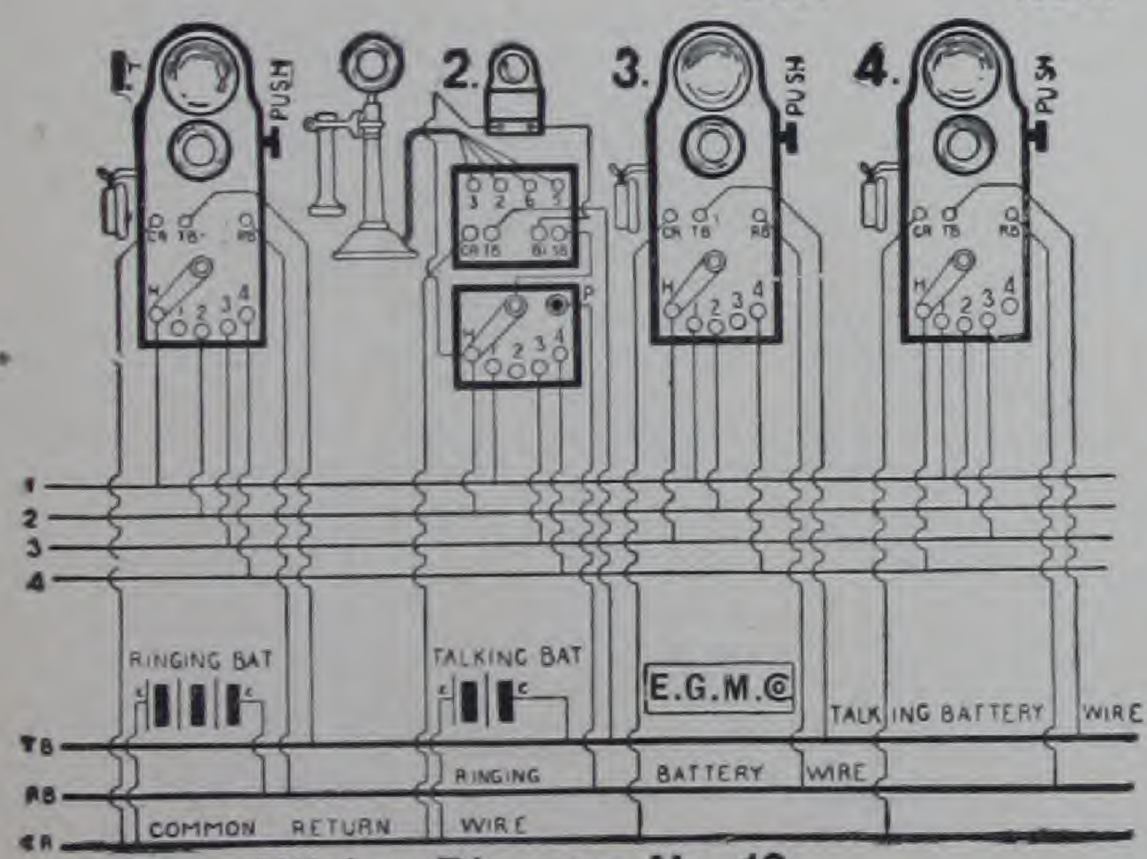
WATER-PROOF CABLE.

			Per Foot.
Zabovo	11053	8 Cond. (4 stations)	.20
Zabovob	11054	12 Cond. (8 stations)	.24
Zabovoc	11055	16 Cond. (12 stations)	.30
Zabovod	11056	20 Cond. (16 stations)	.34
Zabovoh	11059	24 Cond. (20 stations)	.40

NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The slightest crack in the wax top allows the moisture to escape, resulting in a "dead" cell. Low amperage or voltage in one cell reduces all cells to the same output. The results from the use of the No. 3 are phenomenal. Send for test chart made on actual work.

Zudol	45561	No. 3 Samson Battery, per cell	2.00



Wiring Diagram No. 18.

NO. 18 WIRING DIAGRAM.

Use as many wires as there are stations plus three common wires. If you use "Safeguard" Cable, "Safeguard" Distributing Boxes and No. 3 Samson Batteries you will secure perfect operation, thereby increasing your reputation on telephone work.

CAUTION—Do not cut out this diagram. Large ones are mailed on application and sent with every system.

TELEPHONES.

INTERCOMMUNICATING SYSTEMS. NON-INTERFERING.

THE "SIMPLAN" AUTOMATIC SWITCH ARM OR PLUG TELEPHONE.

(Patent Pending.)

This instrument has No Home Point, connection with the "home" wire being maintained automatically unless an outgoing call is being made. The switch arm or plug may be left anywhere. The cut shows the simple means which makes this possible. It is well named the "Simplan," as it is built on a simple plan, the only addition to the ordinary switch arm or plug instrument being a system of flat contact springs (just like those used on a switch hook) controlled by a push button. The arrangement of these springs is such that when at rest the "home" wire is in connection with the talking circuit; and this condition is not disturbed when the station is being called by an outlying station, the result being precisely the same as though the switch arm (in an ordinary switch arm instrument) had been restored to its place on the "home" point.

In calling a distant station after the switch arm has been connected with the desired station the receiver is taken from the hook and the push button depressed. This action disconnects the "home" wire, and connects the desired station with the talking circuit through its switch point and the switch arm. A continued pressure on the push button cuts in the ringing battery and rings the bell at the called station. On removing the finger from the push button, a latch on the switch hook retains the springs in contact so that the talking circuit is still connected with the switch arm and thus to the distant station. The distant bell rings only while the button is being pressed. On hanging up the receiver, which may be either Long or Watchcase, the latch releases the springs and they return to their original position with the talking circuit connected with the "home" wire.

No. 11037.
Size 10 Pt. 5¼x9¾ in.
Also furnished with long receiver.

This method in this instrument must not be confused with others in which the switch arm is violently and suddenly returned to "home" by a system of spiral springs, which require the most exact balance to operate the mechanism correctly, and in which the switch arm can only be moved in one direction. The "Simplan" is just as effective in the plug type as in the switch arm instrument. For desk use we recommend the hand microphone, it being in every respect handier than the desk set (which requires usually the use of two hands) and avoids interference with the papers and material on the desk. We equip the "Simplan" with the necessary devices by which connection can be made with the local telephone exchanges.

"SIMPLAN" CABINET WALL TYPE.

No. 581.				No. 591.			
Code Word.	List No.		List Price, Each.	Code Word.	List No.		List Price, Each.
Zabovey	11030	4 Point.	$12.00	Zabovid	11040	4 Jack..	$13.00
Zabovez	11036	8 Point.	13.00	Zabovif	11041	8 Jack..	14.00
Zabovi	11037	12 Point.	14.00	Zabovig	11042	12 Jack..	15.00
Zabovib	11038	16 Point.	15.00	Zabovih	11046	16 Jack..	16.00
Zabovic	11039	20 Point.	16.00	Zabovik	11047	20 Jack..	17.00
Zabovih	10151	"Bi-Plan Back-boards for either size...					.60
Zabovic	11027	With long receiver, extra.....					.50
Zabovid	10152	With Samson long distance transmitter, extra					1.00
Zabovif	11029	With hand microphone, extra.....					10.00
Zabovig	10150	With special woods and finishes, extra...					1.00

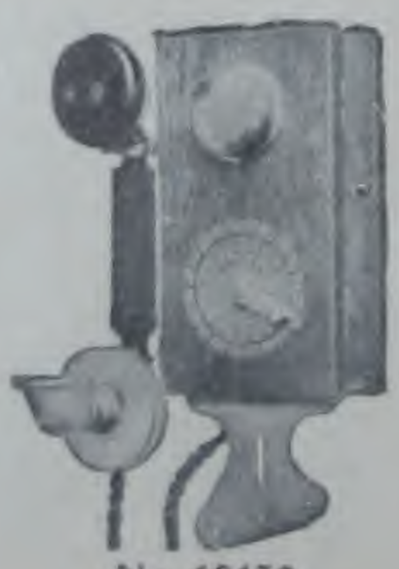
Interior View.

"SIMPLAN" DESK TYPES.

The "Simplan," fitted with hand microphone and attached to a bracket fastened to the side of a roll or flat top desk, is the most practicable desk set. It relieves the desk of the incumbrance of the desk stand and admits of a comfortable position in speaking.

WITH HAND MICROPHONE.

No. 532.				No. 531.			
Zabovil	11023	4 Point.	22.00	Zabovis	11048	4 Jack..	23.00
Zabovim	11024	8 Point.	23.00	Zabovit	11049	8 Jack..	24.00
Zabovin	11025	12 Point.	24.00	Zaboviv	11050	12 Jack..	25.00
Zabovip	11026	16 Point.	25.00	Zaboviw	11051	16 Jack..	26.00
Zabovir	10153	20 Point.	26.00	Zabovix	11052	20 Jack..	27.00
Zabovof	11057	With Samson long distance transmitter, extra					1.00
Zabovog	11058	With special woods and finishes, extra...					1.00



No. 10153.

WITH COLLAPSIBLE OR EQUIPOISE BRACKETS.

The "Simplan" can be attached to a Collapsible (see "Bi-Une," Page 3) Bracket at $6.00 list (not net), over the price of the Wall Type "Simplan," or an Equipoise (see "Bi-Une") at $10.00 list additional. Either type makes a convenient device.

No. 11062.

TELEPHONES.

INTERCOMMUNICATING SYSTEMS, NON-INTERFERING.

"SIMPLAN" DESK STAND.

This stand is not complete without the switch block listed below. The price, however, includes terminal block and five feet of green silk cord. No bell or buzzer is included in price. Contractor supplies same, or they can be attached to terminal block at prices named. Bracket Switch Block No. 243 can be used if preferred. (See Index.)

Code Word.	List No.		List Price, each.
Zabovom	**11062**	No. 136 desk stand, with cord and block	**$16.00**
Zabovon	**11063**	Terminal block, with bell attached	**.70**
Zabovop	**11064**	Terminal block, with buzzer attached	**1.20**
Zabovor	**11065**	With Samson long distance transmitter, extra	**1.00**

SWITCH AND JACK BLOCKS.

No. 11066.

No. 545.				No. 546.			
Zacimox	**22649**	4 Point	**$1.50**	**Zabovow**	**11069**	4 Jack.	**2.00**
Zacimoy	**22650**	8 Point	**2.00**	**Zabovox**	**11070**	8 Jack.	**2.50**
Zabovos	**11066**	12 Point	**2.50**	**Zabovoy**	**11071**	12 Jack.	**3.00**
Zabovot	**11067**	16 Point	**3.00**	**Zabovoz**	**11872**	16 Jack.	**3.50**
Zabovov	**11068**	20 Point	**3.50**	**Zacimoz**	**22651**	20 Jack.	**4.00**

NO. 1 "SAFEGUARD" JUNCTION BOX.

Saves time in wiring and furnishes rapid means of testing wherever you make a "tap." The best and only device of its kind, giving a safer connection than soldering, as is frequently done. Cover is also furnished. Four terminals are on each connecting strip, providing "taps" for two cables. For concealed work, place in wooden box between studding, with door for inspection. Consult detail description. (See Index.)

Four terminal strips, three common wires, and one for spare, are furnished. Consult description page 55.

Zufot	**45657**	For 8 stations	**2.00**
Zufov	**45658**	For 12 stations	**3.00**
Zufow	**45659**	For 16 stations	**4.00**
Zacimu	**22652**	For 20 stations	**5.00**

"SAFEGUARD" CABLE.

No. 45658.
DAMPPROOF.

This cable is made in dampproof and waterproof types. In the former, the first winding on the conductors is weatherproof, then a designating color braid. The conductors after cabling are wound with a double layer of paraffined paper, a weatherproof braid, and then an oak colored cotton braid. The saving in labor and copper over open wiring is pronounced. In the waterproof, the conductors are first rubber covered, then wound with two layers of tape, with an outer braided weatherproof. This cable has three common wires and one spare. See pages 60 and 61 for complete description.

WATERPROOF.

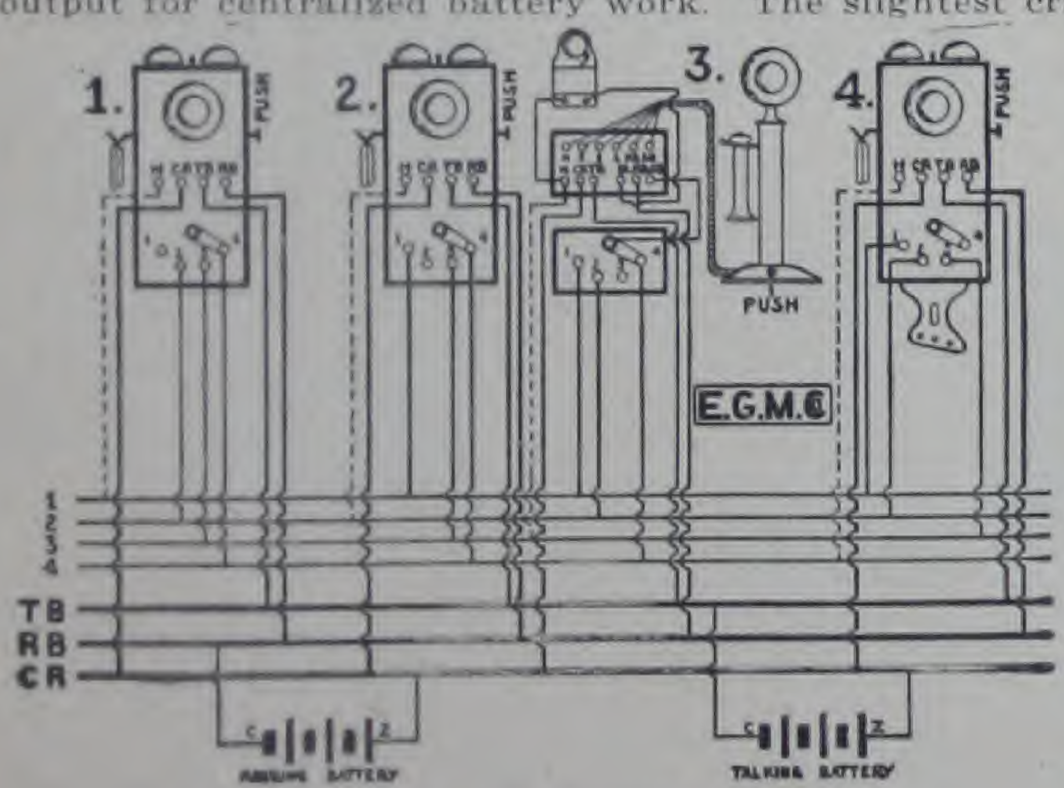
No. 45663.			Ft. to lb.	Per lb.	No. 45666.			Per Ft.
Zacimub	**22653**	8 Conductors (4 stations)	8	**.80**	**Zacimuc**	**22655**	8 Conductors.	**.20**
Zufox	**45660**	12 Conductors (8 stations)	6	**.80**	**Zufud**	**45664**	12 Conductors.	**.24**
Zufoy	**45661**	16 Conductors (12 stations)	5	**.80**	**Zufuf**	**45665**	16 Conductors.	**.30**
Zufoz	**45662**	20 Conductors (16 stations)	4½	**.80**	**Zufug**	**45666**	20 Conductors.	**.34**
Zufu	**45663**	24 Conductors (20 stations)	3¾	**.80**	**Zufuh**	**45667**	24 Conductors.	**.40**

Reels exchanged at cost, and credited when returned.

NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The slightest crack in the wax top allows the moisture to escape, resulting in a "dead" cell. Low amperage or voltage in one cell reduces all cells to the same output. The results from the use of the No. 3 are phenomenal. Send for test chart made on actual work.

Zufuh **45668** No. 3 Samson Battery, per cell **2.00**



No. 19 Diagram.

NO. 19 WIRING DIAGRAM.

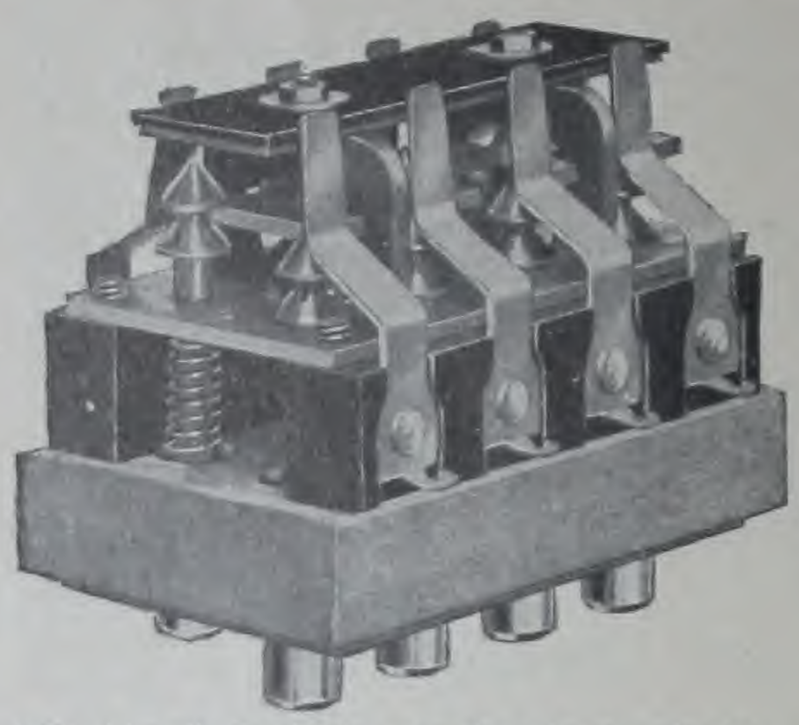
Use as many wires as there are stations plus three common wires. If you use "Safeguard" Cable, "Safeguard" Distributing Boxes and No. 3 Samson Batteries you will secure perfect operation, thereby increasing your reputation on telephone work.

CAUTION.—Do not cut out this diagram. Large ones are mailed on application and sent with every system.

No. 45668.

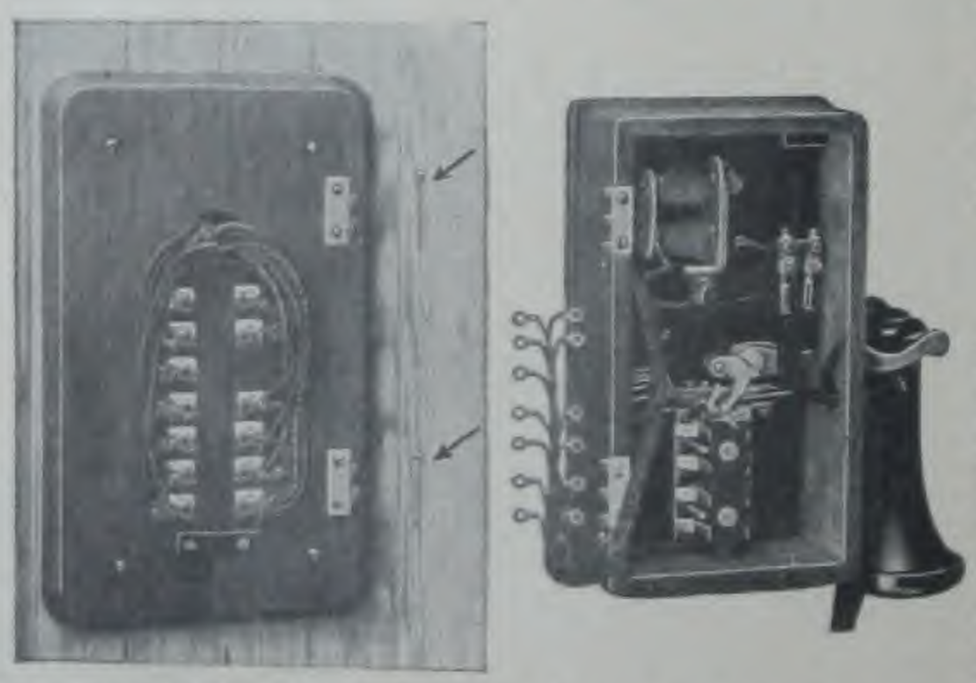
TELEPHONES.

THE "BI-UNE" AUTOMATIC INTERCOMMUNICATING TELEPHONE.



"Bi-Une" Switch mechanism, showing double cone plungers; line springs mounted on insulating block, insulated ringing bar, etc.

"Bi-Une" internal construction. Incoming and outgoing cables connected to backboard.



Removing "Bi-Une" mechanism without disturbing backboard or wiring. "Bi-Plan" Backboard can be installed when wiring is done.

"TWO IN ONE."

For "Common-Return" Wiring.

Our "Bi-Une" (the name signifying two instruments in one) excels in many important details all other "Common-Return" Automatic Intercommunicating Telephones manufactured. It has been built with an effort to secure efficiency in the simplest manner and has fulfilled every expectation.

TELEPHONE AND BACKBOARD SEPARABLE.

This improvement is without doubt the most important ever made in automatic intercommunicating telephones. The backboard of each instrument is separable and forms its own distributing block. The front cabinet contains all the mechanism and is mounted on the "Bi-plan" backboard by separable "loose pin" hinges. Upon the backboard are fastened special terminal clips, each of which is provided with three connections, one each for the incoming and outgoing cable conductors, and one for a conductor from the interior wiring of the 'phone. The advantage of this construction will be quickly appreciated, as it saves the use of most of the junction boxes and the necessity of making "taps," except where two are to be made at the same point in the main cable, in which case a "Safeguard" junction box should be used. Easy and rapid testing is also secured, as the telephone is immediately at hand. The cable from the interior of the phone is composed of wires which are formed into a cable, laced and shellacked and provided with soldered clips, which are fastened to the inner row of Bi-plan terminals by screws. As a distinctive color of wire is used for each row of terminals, and the spacing exactly corresponds, no error can be made when wires are disconnected, as described in the following paragraph. The cable being in the form of a long loop, no twisting occurs in opening the case.

INTERCHANGEABILITY.

The ability to quickly remove the cabinet containing the mechanism from the "Bi-plan" enables replacing an inoperative 'phone at a busy station almost instantly, as it is only necessary to remove the front mechanism from an infrequently used station and connect it up in place of the defective 'phone. The contractor can then take the telephone to his store for repairs, or send it to us. It is, however, with no expectation that difficulty will be experienced in our 'phones that we make this suggestion, but with the realization that no mechanical construction is infallible in its operation.

SWITCHING MECHANISM.

As this is one of the most important parts of an Automatic Intercommunicating Telephone, we describe its construction. The switch proper is attached to the inside of the case by long machine screws, which pass through the wood into the plate which supports the plungers. The locking mechanism consists of a plate which is controlled by gravity and slides freely in grooves which assures proper and unfailing operation. The circuit making push plungers terminate in double cones; the locking plate therefore receives two distinct releasing impulses, giving absolute certainty of release when a succeeding button is pressed. The line springs are riveted on a hard rubber mounting strip, and rest normally under constant tension against a rubber insulating plunger when the push is depressed, and assures a positive rubbing contact. The ringing plate is mounted on supporting bridges and is carefully insulated from all other parts of the mechanism.

TELEPHONES.

No. 800.
"Bi-Une" Wall Type Buttons, 5-16 inch diameter, 5/8 inch on centers.

"BI-UNE" AUTOMATIC TELEPHONE.

"BI-UNE" TRIPPING CAM.

The releasing catch of the Bi-Une is of most simple construction. It consists of but a single piece, which is tripped by a solid metal tongue, and not as in some makes, which are composed of a number of pieces and have an adjusting screw which is liable to become loose and cause loss of adjustment. The cam is operated by gravity and is in contact with the locking plate only at the moment of operation, and therefore does not impede its perfect working when actuated by the plunger.

DISADVANTAGES OVERCOME.

While in other instruments the push plunger will not lock while the receiver is on the hook, or the bell of the calling station will ring unless the receiver is first removed from the hook, the "Bi-Une" will operate properly with the receiver in either position. Every instrument is fitted with an induction coil, which gives a quality of tone far superior to instruments in which this coil is not present. The size and spacing of the buttons are what have proved to be best adapted for use, being 5-16 inches in diameter and 5/8 inch apart, whereas some types are made with smaller buttons and closer on centers. For factory use the buttons should be of sufficient size and distance apart that two buttons will not be accidentally depressed at the same time.

No. 810.
Long Distance "Bi-Une." Will ring and talk over a mile of wire.

PREVENTION OF CROSS-TALK.

We have developed a system of wiring which requires only 3 "Common" wires instead of 4, as used by other manufacturers, and guarantee this system to be as free from "Cross-talk" as the 4 wire if a No. 14 gauge wire is used for the common return wire. Our "Safeguard" Intercommunicating cable contains a common wire of this size. We can, however, furnish the system wired for 4 common returns if purchaser prefers same. Absolute elimination of "Cross-talk" cannot be guaranteed except in a metallic circuit system, using our "Eversure" Automatic Intercommunicating telephone wired for metallic circuit, and installing a twisted pair cable. See pages 5 to 14 inclusive.

WALL TYPES.

A well designed cabinet, rubbed down in shellac (not varnish), is furnished for this style. Where exposed wiring is to be used our "Bi-plan" two part backboard will be found well adapted for raising the telephone to the required height. The proper sized slot to admit the cable can be easily made in this two part backboard from above or below or from both directions. This is the first backboard ever constructed which can be deemed practical and easy to install.

"Bi-Une" Exchange Type. Lower button connects up station with trunk line to Municipal Exchange See Page 3.

NO. 800, "BI-UNE" WALL TYPE.

Code Word.	List No.		List Price, Each.
Zacifum	19846	8 Button Bi-Une Telephone	$14.00
Zacifun	19847	12 Button Bi-Une Telephone	16.00
Zacifup	19848	16 Button Bi-Une Telephone	18.00
Zacifur	19849	20 Button Bi-Une Telephone	20.00
Zacifus	19850	24 Button Bi-Une Telephone	22.00

The "Bi-Une" can also be furnished in the Factory, Magneto, and Water-Proof types, similar to Eversure styles Nos. 905, 912, and 915. (See page —.) Prices on application.

Larger sizes in multiples of four.

See following pages for prices on "Bi-Plan" Backboards to raise the 'phone when wiring cable is to be exposed.

TELEPHONES.

NO. 810, "BI-UNE" LONG DISTANCE TYPE.

See illustration on Page 1.

"Bi-Une" Outlet Box. Terminal board permanently attached in box.

This instrument enables certain phones on a "Bi-Une" system to be located at a distance of a mile from any of the others. The bell will ring satisfactorily if 6-10 of an ampere is delivered at the bell. The usual number of batteries used for the ringing circuit will suffice if our Safeguard waterproof intercommunicating cable is used. (See description on Pages 60 and 61.)

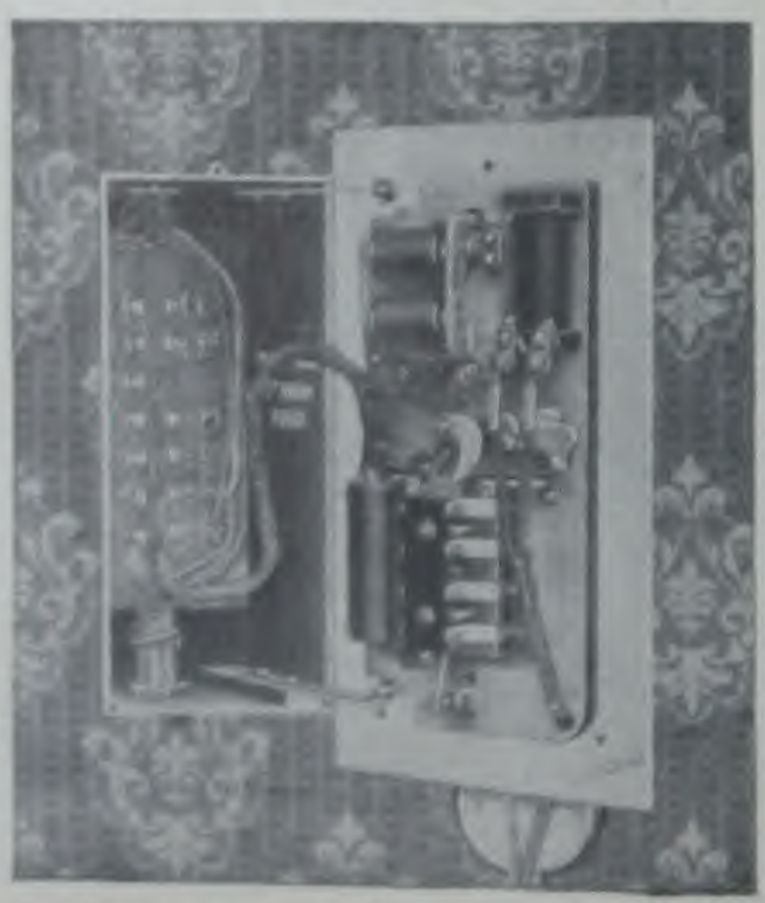
Code Word.	List No.		List Price. Each.
Zacifom	19863	8 Button	$24.00
Zacifon	19864	12 Button	26.00
Zacifop	19865	16 Button	28.00
Zacifor	19866	20 Button	30.00
Zacifos	19867	24 Button	32.00

FLUSH TYPE.

The "Bi-Une" Flush Automatic Telephone is a marked advance over previous methods of construction. It furnishes an ideal 'phone for residence use, or wherever this style is applicable. It is made in both wood and metal, and in any finish desired. The stock finish in metal is brush brass, and in wood golden oak.

"Bi Une" Flush Type Plate rigidly fastened to outlet box.

Whereas other outlet boxes require to be "cut in" to the plaster when the building is finished, this one is installed when the building is wired. It is provided with "knock-out" holes top and bottom, which enables the box to be used with iron conduit, also where our Safeguard or other cable is installed between the partitions. In either case, the outlet boxes and cable are installed, and the latter connected up before the building is lathed. As before mentioned, the use of double terminals admits of the box being used as a junction box, thereby overcoming the necessity of making taps between the partitions. The extension hinges in the outlet box are drawn forward and the telephone hung on same when the installation is to be completed. The clips from the telephone cable are connected up to the terminals in the outlet box; the telephone then pushed back into place, and the plate screwed to the box. This construction positively prevents marring the wall paper, either in connecting up or during inspection. It is necessary to use "Bi-Une" Outlet Boxes with this type.



Telephone opened for connecting or inspection, supported on extension hinges carrying the inner edge of plate away from the wall paper.

NO. 820, "BI-UNE" FLUSH WOOD TYPE.

Zacifot	19831	8 Button, golden oak	20.00
Zacifov	19832	12 Button, golden oak	22.00
Zacifow	19833	16 Button, golden oak	24.00
Zacifox	19834	20 Button, golden oak	26.00
Zacifoy	19835	24 Button, golden oak	28.00

Other finishes extra. Larger sizes in multiples of four. If for a finished house so state.

NO. 825, "BI-UNE" FLUSH METAL TYPE.

Zacifoz	19836	8 Button, brush brass	20.00
Zacifu	19837	12 Button, brush brass	22.00
Zacifub	19838	16 Button, brush brass	24.00
Zacifuc	19839	20 Button, brush brass	26.00
Zacifud	19840	24 Button, brush brass	28.00

Other finishes extra. Larger sizes in multiples of four. If for a finished house so state.

"BI-UNE" IRON OUTLET BOXES.

If telephones are to be used in a finished house order must so state, both on outlet boxes and telephones.

Zacifuf	19841	8 Button, size 4x8⅝x3¼ in. deep	.80
Zacifug	19842	12 Button, size 4x9⅞x3¼ in. deep	.90
Zacifuh	19843	16 Button, size 4x11⅛x3¼ in. deep	1.00
Zacifuk	19844	20 Button, size 4x12⅜x3½ in. deep	1.10
Zaciful	19845	24 Button, size 4x13⅝x3½ in. deep	1.20

The above figures are outside measurements.

TELEPHONES.

"BI-UNE" AUTOMATIC TELEPHONES.

NO. 830, "BI-UNE" PORTABLE DESK STAND.

No. 830. Portable "Bi-Une" Deskstand.

We manufacture this type of desk set to meet the requirements of customers who have become accustomed to its use. We, however, do not recommend it. The stand is an encumbrance on the desk; the flexible cable is liable to become tangled, while an accidental fall or the constant bending of the delicate strands of wire sooner or later causes them to break. As this style of instrument is only placed at the more important stations, inoperation while repairs are being made is very disadvantageous. Not made above 24 station.

Code Word.	List No.		List Price, Each.
Zacikur	**19942**	8 Button, complete, with flexible cable, etc.	**$22.00**
Zacikus	**19943**	12 Button, complete, with flexible cable, etc.	**25.00**
Zacikut	**19944**	16 Button, complete, with flaxible cable, etc	**28.00**
Zacikov	**19945**	20 Button, complete, with flexible cable, etc.	**31.00**
Zacikow	**19946**	24 Button, complete, with flexible cable, etc.	**34.00**

"BI-UNE" COLLAPSIBLE BRACKET.

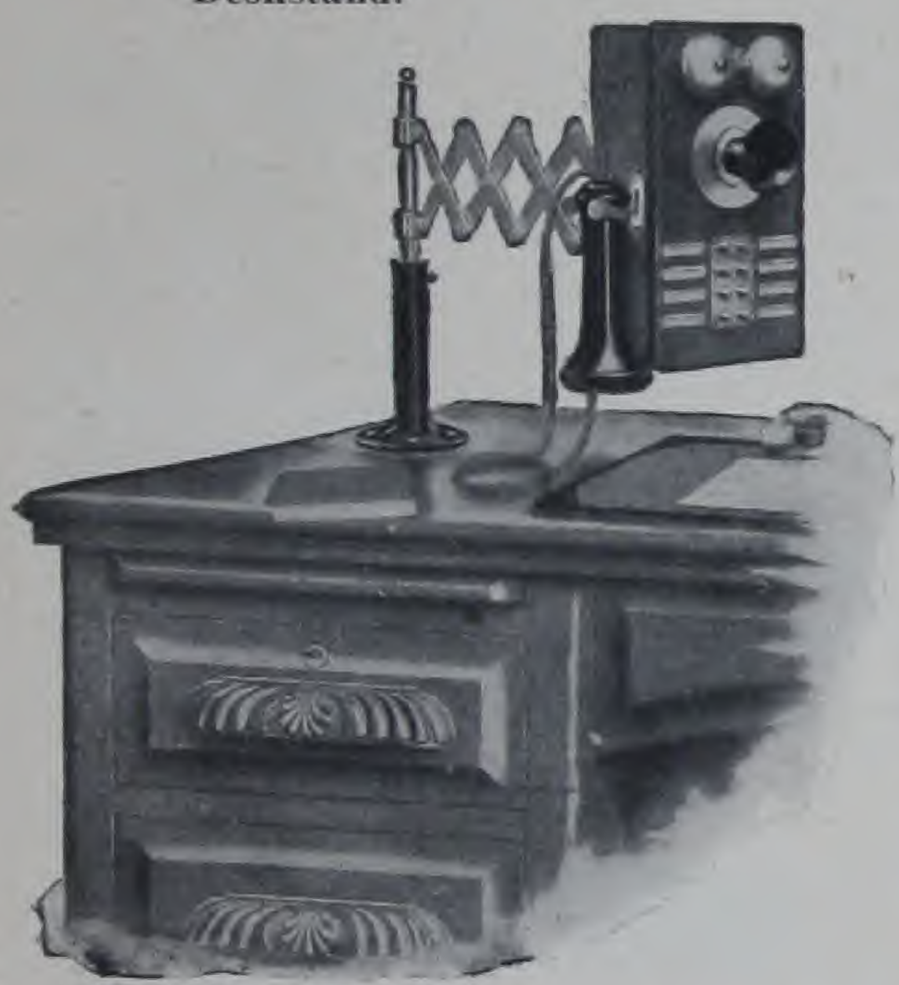
This form can be extended fifteen inches, and can be used on either a roll or flat top desk. In the latter style it can be swung from one side to the other for the use of two persons. Buzzer call if preferred and so stated.

NO. 838, ROLL TOP.

Zacikux	**19947**	8 But., compl. with flexible cable.	**20.00**
Zacikuy	**19948**	12 But., compl. with flexible cable.	**22.00**
Zacikuz	**19949**	16 But., compl. with flexible cable.	**24.00**
Zacila	**19950**	20 But., compl. with flexible cable.	**26.00**
Zacilab	**19951**	24 But., compl. with flexible cable.	**28.00**

NO. 848, FLAT TOP.

Zacilad	**19953**	8 But., compl. with flaxible cable.	**20.00**
Zacilac	**19952**	12 But., compl. with flexible cable.	**22.00**
Zacilaf	**19954**	16 But., compl. with flexible cable.	**24.00**
Zacilag	**19955**	20 But., compl. with flexible cable.	**26.00**
Zacilah	**19956**	24 But., compl. with flexible cable.	**28.00**



No. 838 for Roll Top.
No. 848 for Flat Top.
Note Stationary Bracket Style.

"BI-UNE" STATIONARY BRACKET WITH HAND MIC.

A desirable roll or flat top desk combination not requiring the user to bend forward when conversing. (See Eversure style No. 935). Bell signal unless buzzer is specified.

No. 835. ROLL TOP.

Zacilak	**19957**	*8 But., compl. with flexible cable.	**24.00**
Zacilal	**19958**	12 But., compl. with flexible cable.	**26.00**
Zacilam	**19959**	16 But., compl. with flexible cable.	**28.00**
Zacilan	**19960**	20 But., compl. with flexible cable.	**30.00**
Zacilap	**19961**	24 But., compl. with flexible cable.	**32.00**

NO. 845, FLAT TOP.

Zacilar	**19962**	8 But., compl. with flexible cable.	**24.00**
Zacilas	**19963**	12 But., compl. with flexible cable.	**26.00**
Zacilat	**19964**	16 But., compl. with flexible cable.	**28.00**
Zacilav	**19965**	20 But., compl. with flexible cable.	**30.00**
Zacilaw	**19966**	24 But., compl. with flexible cable.	**32.00**

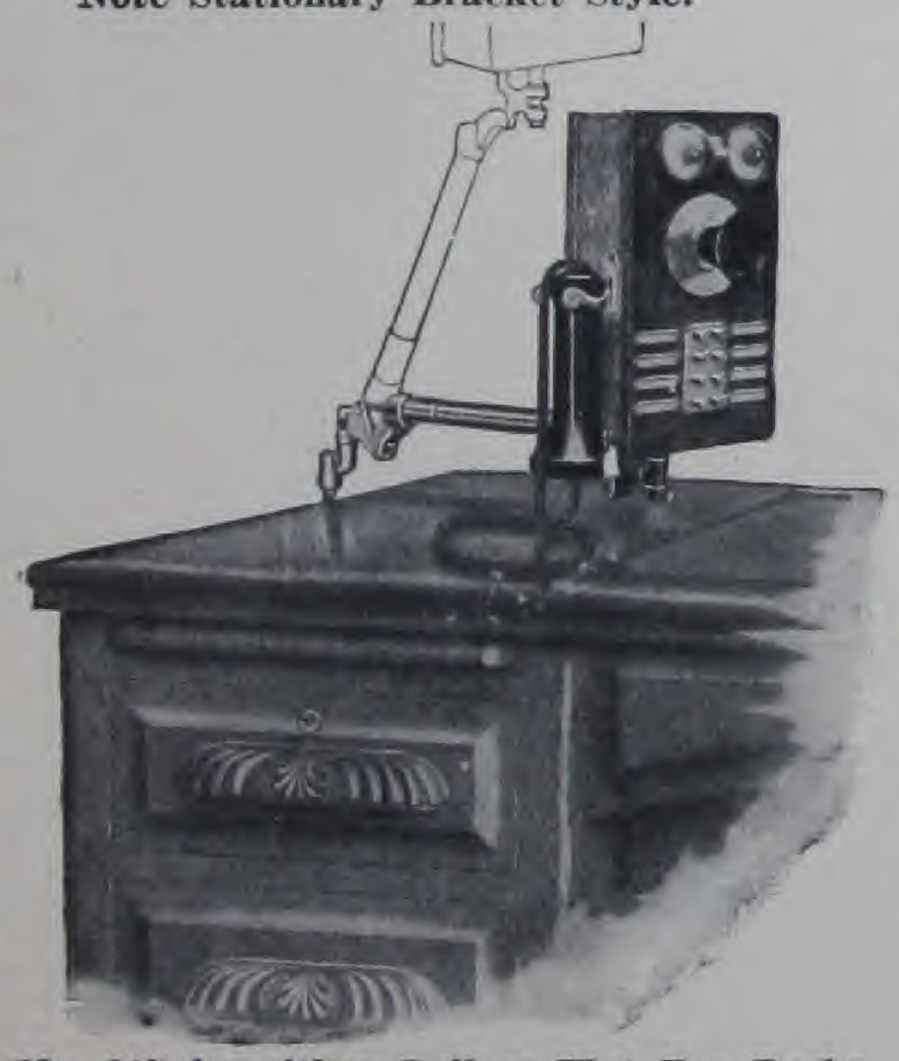
NO. 847, "BI-UNE" EQUIPOISE BRACKET.

This form of desk bracket we consider the best type for use with roll or flat top desks. It can be used with either style, causes practically no movement in the cable, does not encumber the desk, and can be used in either a sitting or standing position, as it is perfectly balanced in either position. A special form, No. 837, attached to the top instead of the side of the roll top. See Eversure type 937; can be furnished at an additional list price of $2.00. Buzzer call instead of bell if preferred.

Zacilax	**19967**	8 But., compl. with flexible cable.	**22.00**
Zacilay	**19968**	12 But., compl. with flexible cable.	**24.00**
Zacilaz	**19969**	16 But., compl. with flexible cable.	**26.00**
Zacile	**19970**	20 But., compl. with flexible cable.	**28.00**
Zacileb	**19971**	24 But., compl. with flexible cable.	**30.00**

*Larger sizes in multiples of four.

*Each instrument is provided with 6 ft. of green silk flexible cable connected to terminal block with buzzer attached.



No. 847 for either Roll or Flat Top Desks.

"BI-UNE" MUNICIPAL EXCHANGE EQUIPMENT.

(See illustration on Page 1.)

This telephone we equip with a special button to enable connection to be made to the Exchange Co.'s trunk lines. A full description of this feature is given in the pages 12, 13, 14, on the Eversure Metallic Circuit Automatic Telephone.

Zacilee	**19972**	Type 1, for Central Energy Exchange, supervised "in" calls, non-supervised "out" calls. Extra per instrument	**$2.00**
Zaciled	**19973**	Type 2, for Central Energy Exchange, supervised "in" calls, supervised "out" calls. Extra per instrument	**2.00**
Zacilef	**19974**	Type 2 Switching Device for Monitor Station only	**6.00**
Zacileg	**19975**	Type 3, for Magneto Exchange, supervised "in" calls, supervised "out" calls. Extra per instrument	**2.00**
Zacileh	**19976**	Transforming Device for Monitor Station only	**10.00**

TELEPHONE ACCESSORIES.

"BI-UNE" ACCESSORIES.

No. 22887.

NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The slightest crack in the wax top allows the moisture to escape, resulting in a "dead" cell. Low amperage or voltage in one cell reduces all cells to the same output. The results from the use of the No. 3 are phenomenal. Send for test chart made on actual work.

Code Word.	List No.		List Price, Each.
Zacinuz	22887		$2.00

No. 22888.

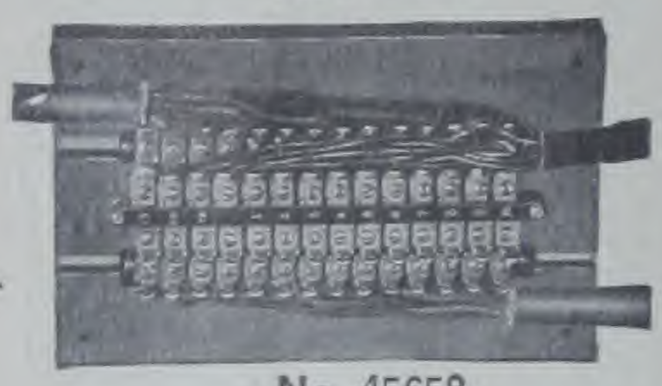
"BI-PLAN" BACK BOARD.

A most practical auxiliary in the installation of our 'phones when the cable is exposed in the building. Entrance for cable from above or below or both is made easily and quickly, efficiently excluding bugs and vermin.

Zacipa	22888	For any size	.60

NO. 1 "SAFEGUARD" DISTRIBUTING BOX.

Saves time in wiring and furnishes rapid means of testing wherever you make a double "tap." The best and only device of its kind, giving a safer connection than soldering, as is frequently done. Cover is also furnished. Four connections are on each terminal strip, providing "taps" for two cables. For concealed work, place in wooden box between studding, with door for inspection. Provided the three terminal strips for common returns and one spare. Consult detail description. (See index.)



No. 45658.

Zufot	45657	For 8 stations	2.00
Zufov	45658	For 12 stations	3.00
Zufow	45659	For 16 stations	4.00
Zacipab	22889	For 20 stations	5.00
Zacipac	22890	For 24 stations	6.00

"SAFEGUARD" CABLE. In stock for immediate shipment.

This cable is made in dampproof and waterproof types. In the former, the first winding on the conductors is weatherproof, then a designating color braid. The conductors after cabling are wound with a double layer of paraffined paper, a weatherproof braid, and then an oak colored cotton braid. The saving in labor and copper over open wiring is pronounced. In the waterproof, the conductors are first rubber covered, cabled and then wound with two layers of tape, with an outer braided weatherproof. This cable has three common wires and one spare. See pages 60 and 61.

DAMPPROOF.

No. 22892.

WATERPROOF.

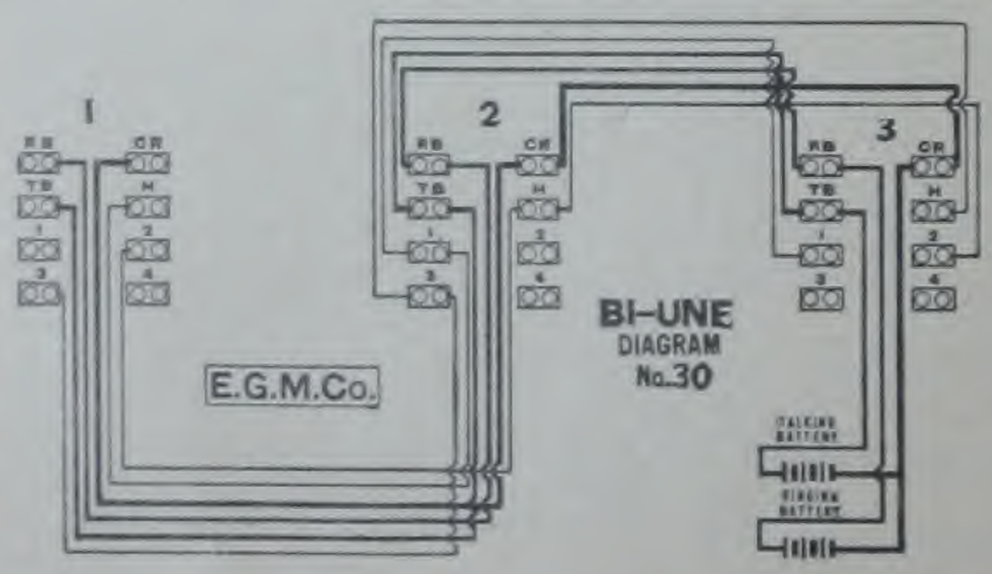
No. 22898.

DAMPPROOF.

			Feet per Lb.	Per Lb.
Zacipad	22891	8 Conductor (4 stations)	8	.80
Zacipaf	22892	12 Conductor (8 stations)	6	.80
Zacipag	22893	16 Conductor (12 stations)	5	.80
Zacipah	22894	20 Conductor (16 stations)	4½	.80
Zacipak	22895	24 Conductor (20 stations)	4	.80
Zacipal	22896	28 Conductor (24 stations)	3½	.80

WATERPROOF.

			Per Foot.
Zacipam	22897	8 Conductors	.20
Zacipan	22898	12 Conductors	.24
Zacipap	22899	16 Conductors	.30
Zacipar	22900	20 Conductors	.34
Zacipas	22901	24 Conductors	.40
Zacipat	22902	28 Conductors	.44

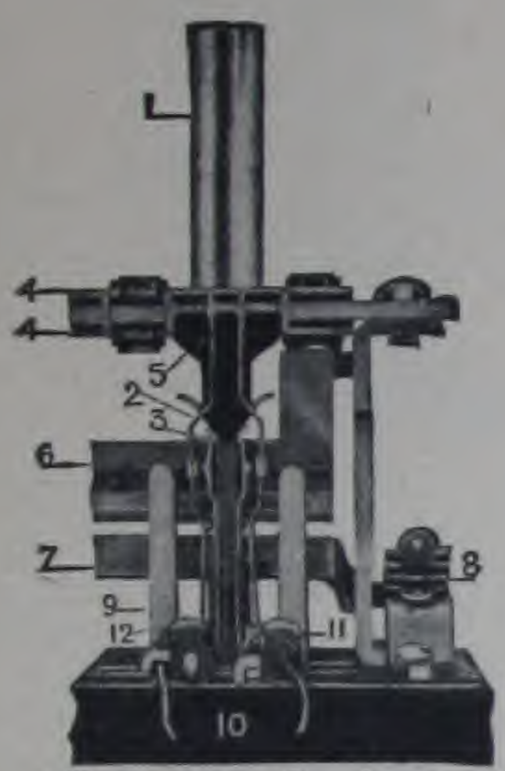


No. 30 Wiring Diagram.
No Junctions Shown.

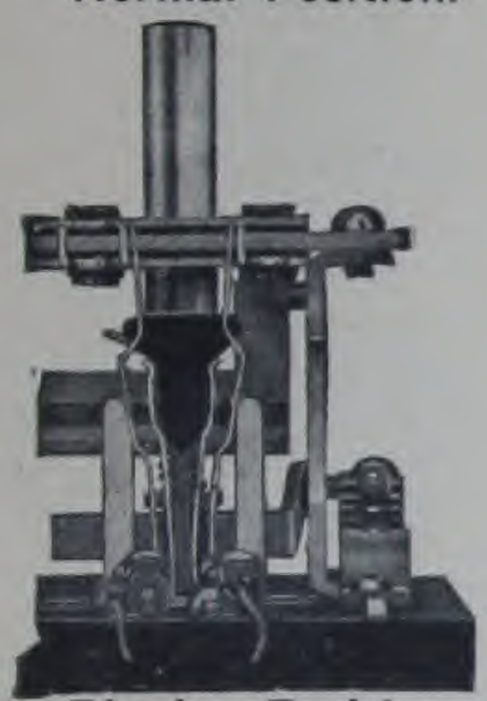
NO. 30 WIRING DIAGRAM.

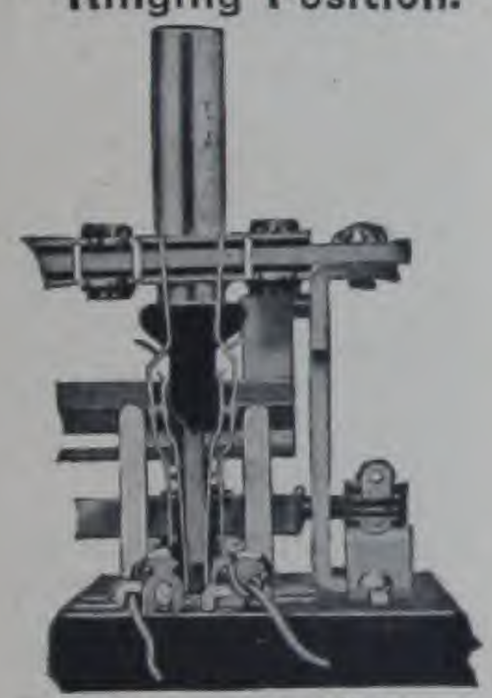
Use as many wires as there are stations, plus three common return wires; one for talking, one for ringing, and one for common return, which should be at least gauge No. 14. If the "Four Wire" Common Return System is preferred by the contractor, one additional common return wire should be used.

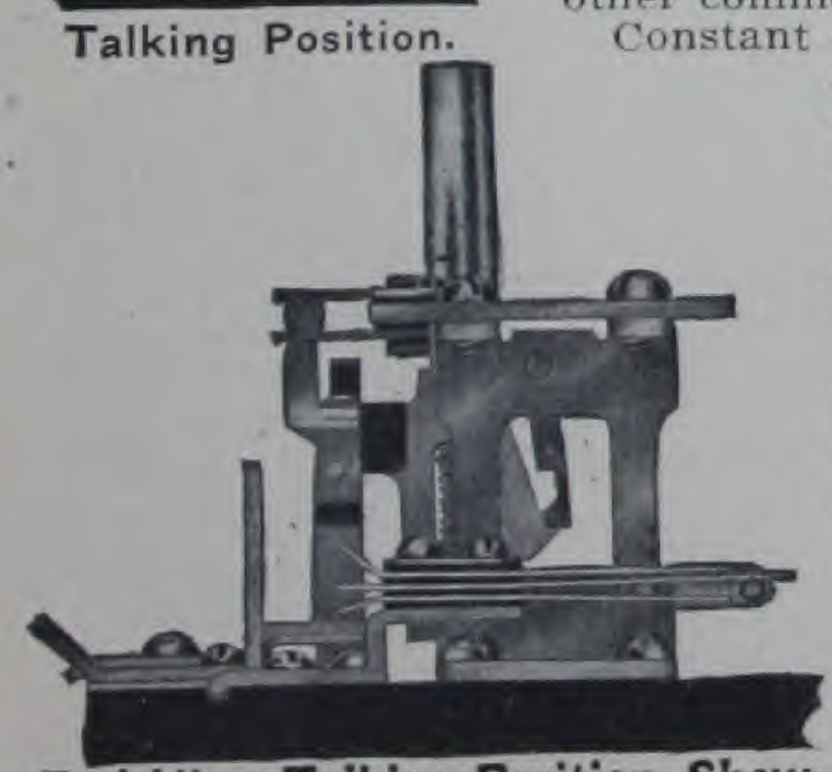
TELEPHONES.



Eversure Springs. Normal Position.


Ringing Position.


Talking Position.


End View Talking Position, Showing "Interference Lockout" Device.

THE "EVERSURE" AUTOMATIC INTERCOMMUNICATING TELEPHONE.

The Eversure Automatic Intercommunicating Telephone is the result of the combined efforts of our telephone and mechanical experts to overcome disadvantages structurally and electrically existing heretofore in all telephones of this class, and to incorporate features which would make it the peer in this type of telephone. How well we have succeeded is evidenced by the product itself and the favorable testimony of all users. Every telephone and electrical engineer who has made an examination of the instrument coincide in their opinion that it comes the nearest to perfection of any intercommunicating telephone ever constructed.

PRIOR DEFECTS.

Many defects existing in prior apparatus have been eliminated in this new instrument, such as being obliged to remove the receiver before calling, pressing an additional button, a cabinet which would allow the entrance of bugs and dust, and other disadvantages, which are more fully described in our special pamphlet on this instrument.

LOCK-OUT INTERFERENCE DEVICE.

This feature is one of the most advantageous ever introduced into this class of telephones. Upon depressing any button to signal another station the home wire is broken and no other station can by depressing the button corresponding with the calling station break in on this line until the receiver has been replaced upon the hook. This overcomes the possibility of proprietors or heads of departments, who generally call and are not called from the more frequently used stations, being annoyed by parties calling them while conversing, and overhearing the conversation.

OTHER ADVANTAGEOUS FEATURES.

The dust and bug proof feature of the Eversure is advantageous in all factory locations where these two evils are liable to cause the instruments to become inoperative.

Rubber insulation is used for mounting all of the switch mechanism, which precludes the possibilty of a leak.

The receiver switch cutout, which is a chain securely attached to the receiver cord and the hook, cuts out the battery circuit by depressing the hook should the receiver accidentally be left hanging.

Cross talk is eliminated if the system is wired metallic circuit. If it is wired "common-return" it is as free from cross talk as any other common return system.

Constant tension springs are a feature in the Eversure. There are no "floating" springs in this instrument, while the cam which closes the different circuits is of genuine hard rubber, vulcanized on the plunger.

The push button plungers are of practicable size, being 5-16 inch in diameter and arranged on ¾ inch centers, which obviates any possibility of pressing two buttons at once.

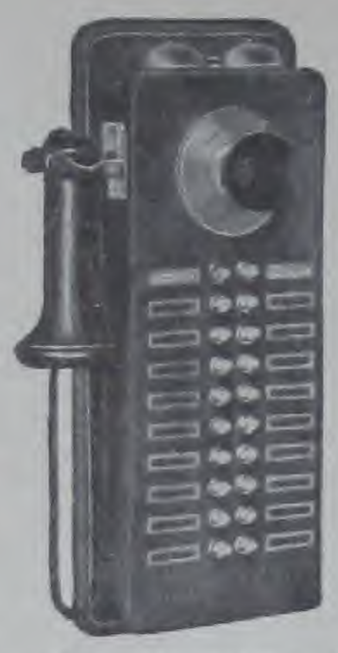
Visible contacts in this telephone will be appreciated by all users. Every circuit closing spring is open for immediate inspection upon the cover being removed.

Our "Antisep" mouthpiece is placed on all Eversure telephones, which prevents germs entering the mouthpiece and causing infection.

Local exchange connection is furnished, as described in later paragraphs.

Exposed or concealed wiring can be used in installing the Eversure. If the former is used our Bi-plan Backboard, shown in illustration, should be used.

TELEPHONES.



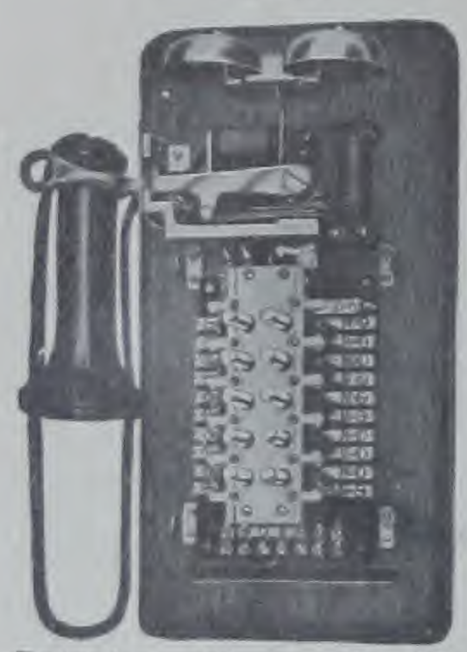
No. 900, Eversure Wall Type.

FINISHES.

The cabinet form is supplied in golden quartered oak and the metal flush in brush brass, unless otherwise specified when order is placed, in which case an additional charge is made.

INFORMATION NECESSARY IN ORDERING.

In ordering care should be taken, first, to explain whether the system is to be wired metallic circuit or common return; second, the number of stations desired and the ultimate capacity of the system; third, if special finishes, they should be named; or still better, a sample sent if exact duplication is required; fourth, how many 'phones are to be used with exposed wiring and how many with concealed; fifth, if special combinations are required such as superintendent's call, outside service, etc., explicit instructions given of what is desired to be accomplished.



Interior View of Wall Type. Mechanism Mounted on Hard Rubber.

NO. 900, EVERSURE WALL TYPE.

Code Word.	List No.		List Price, Each.
Zacilil	19978	8-Button, golden oak finish	$20.00
Zacilim	19979	12-Button, golden oak finish	24.00
Zacilin	19980	16-Button, golden oak finish	28.00
Zacilip	19981	20-Button, golden oak finish	32.00
Zacilir	19982	24-Button, golden oak finish	36.00

EVERSURE FLUSH TYPE.

(Also furnished with watch case receiver.)

No. 925, Eversure Flush Type. ¾ Inch Extension Edge. Receiver Cannot Mar Paper.

NO. 925, METAL.

Zacilis	19983	8-Button, brush brass	30.00
Zacilit	19984	12-Button, brush brass	34.00
Zaciliv	19985	16-Button, brush brass	38.00
Zaciliw	19986	20-Button, brush brass	42.00
Zacilix	19987	24-Button, brush brass	46.00

NO. 920, WOOD.

Zaciliy	19988	8-Button, golden oak	30.00
Zaciliz	19989	12-Button, golden oak	34.00
Zacilo	19990	16-Button, golden oak	38.00
Zacilob	19991	20-Button, golden oak	42.00
Zaciloc	19992	24-Button, golden oak	46.00

Long receiver sent unless otherwise instructed.

Eversure Iron Outlet Box for Cable or Conduit.

EVERSURE IRON OUTLET BOXES.

			Width, Inches.	Length, Inches.	Depth, Inches.	
Zacilod	19993	8-Button, size...	4¼	9⅛	3	1.00
Zacilof	19994	12-Button, size...	4¼	10¾	3	1.20
Zacilog	19995	16-Button, size...	4¼	12¼	3¼	1.40
Zaciloh	19996	20-Button, size...	4¼	13¾	3¼	1.60
Zacilok	19997	24-Button, size...	4¼	15¼	3¼	1.80

Above are inside measurements.

Larger sizes furnished.

See paragraph on instructions for ordering.

TELEPHONES.

No. 905, "Eversure" Factory Type, Strong and Massive.

NO. 905, "EVERSURE" FACTORY TELEPHONE.

This instrument is made with a massive cabinet, adjustable arm transmitter, writing shelf and 6 inch skeleton bell.

Code Word.	List No.		List Price, Each
Zacilel	22559	8-Button, golden oak finish	$30.00
Zacilem	22560	12-Button, golden oak finish	34.00
Zacilen	22561	16-Button, golden oak finish	38.00
Zacilep	22562	20-Button, golden oak finish	42.00
Zaciler	22563	*24-Button, golden oak finish	46.00

No. 912, "Eversure" Magneto Type.

NO. 912, "EVERSURE" MAGNETO TELEPHONE.

This type is furnished with magneto generators for operating stations over long distances.

Zaciles	22564	8-Button	34.00
Zacilet	22565	12-Button	38.00
Zacilev	22566	16-Button	42.00
Zacilew	22567	20-Button	46.00
Zacilex	22568	*24-Button	50.00

No. 910, "Eversure" Long Distance Type.

NO. 910, "EVERSURE" LONG DISTANCE TELEPHONE.

This instrument is furnished with a long distance bell which will satisfactorily operate over one to two miles of wire. It is only necessary that sufficient battery be installed to deliver over the resistance of the line wire, from 4-10 to 6-10 amperes.

Zaciley	22569	8-Button	30.00
Zacilez	22570	12-Button	34.00
Zacili	22571	16-Button	38.00
Zacilib	22572	20-Button	42.00
Zacilic	22573	*24-Button	46.00

Five, the usual number of No. 3 Samson Batteries used, is sufficient.

No. . 915, . "Eversure" Waterproof Type, Black Enameled Cast Iron.

NO. 915, "EVERSURE" WATER-PROOF TELEPHONE.

This instrument is supplied where certain of the stations are installed outside in locations exposed to the elements, or for use in grain elevators where no woodwork is allowed. It is heavily black enameled.

Zacilid	22574	8-Button	30.00
Zacilif	22575	12-Button	34.00
Zacilig	22576	16-Button	38.00
Zacilih	22577	20-Button	42.00
Zacilik	22578	*24-Button	46.00

*Larger sizes furnished.

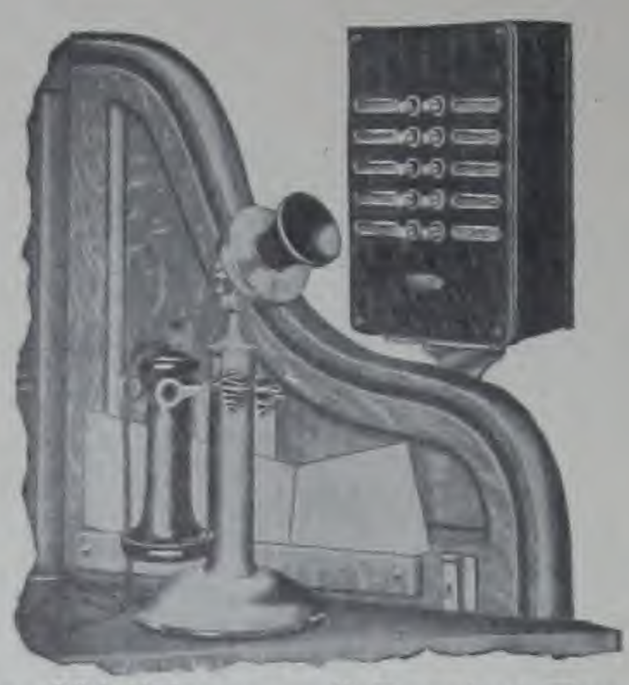
See paragraph on instructions for ordering.

TELEPHONES.

"EVERSURE" AUTOMATIC TELEPHONES.

"EVERSURE" DESK TYPES.

We furnish types of desk stand combinations adaptable for all forms of roll top and flat top desks. We beleve the type shown will meet every requirement.



No. 931 "Eversure" Bracket Type, with Portable Desk Stand.

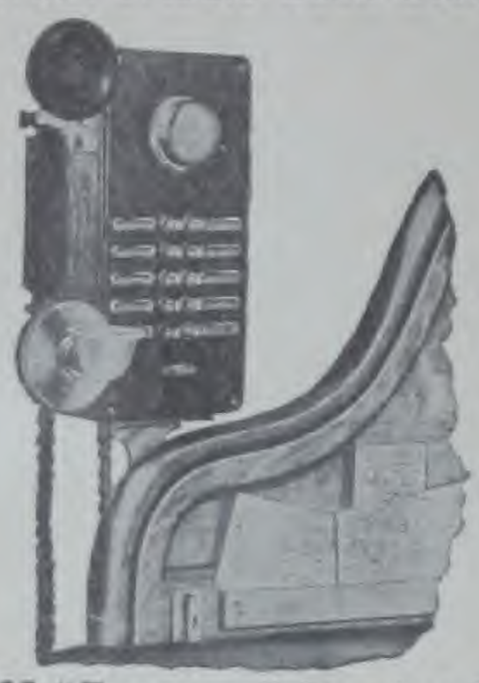
BRACKET TYPE, WITH DESK STAND.

This type consists of cabinet containing switching mechanism (see illustration), which can be attached to either the right or left hand side of the desk. Replacing the receiver on the portable desk stand releases the engaged button. The bracket is furnished for the right hand side of the desk unless otherwise stated.

A Buzzer is used for signalling.

NO. 931 FOR ROLL, OR 941 FOR FLAT TOP DESKS!

Code Word.	List No.		List Price, Each.
Zaciniy	22846	8 Button	$30.00
Zaciniz	22847	12 Button	34.00
Zacino	22848	16 Button	38.00
Zacinob	22849	20 Button	42.00
Zacinoc	22850	24 Button	46.00



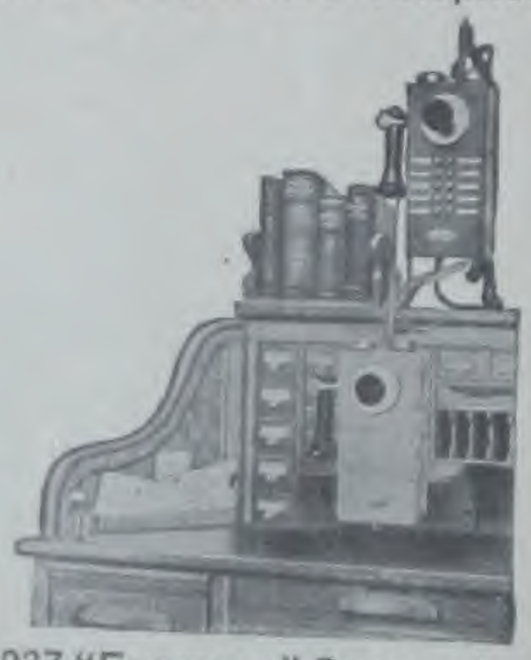
No. 935 "Eversure" Bracket Type, with Hand Micro-Telephone.

BRACKET TYPE, WITH HAND MICRO-TELEPHONE.

This is a desirable combination attached to the left hand side of the desk only, as it relieves the desk of the encumbrance of the portable desk stand and enables the user to sit in a comfortable position while conversing. The objectionable push button in the handle of the microphone is dispensed with.

NO. 935 FOR ROLL, OR 945 FOR FLAT TOP DESKS.

Zacinod	22851	8 Button	30.00
Zacinof	22852	12 Button	34.00
Zacinog	22853	16 Button	38.00
Zacinoh	22854	20 Button	42.00
Zacinok	22855	24 Button	46.00



No. 937 "Eversure" Suspended on Equipoise Arm, Shown "In" and "Out" of Position.

NO. 937 EQUIPOISE TELEPHONE.

In this style the Eversure telephone is attached to the well known Equipoise arm shown in illustration. It is drawn down into position for use and then pushed out of the way. The bracket can be attached to the top at any desired point.

Zacinol	22856	8 Button	30.00
Zacinom	22857	12 Button	34.00
Zacinon	22858	16 Button	38.00
Zacinof	22859	20 Button	42.00
Zacinor	22860	24 Button	46.00

No. 932 Drawer Type.

NO. 932 DRAWER TYPE.

Considered by some users the most practicable desk style. It can be placed in either a right or left hand drawer of a roll or flat top desk. It need not necessarily be the top drawer. Replacing the receiver on the desk stand releases the engaged button. Ascertain width and depth of drawer before placing order.

			Long.	Wide.	Deep.	
Zacinos	22861	8 Butt...	7¼	4¾	2¾	30.00
Zacinot	22862	12 Butt...	8½	4¾	2¾	34.00
Zacinov	22863	16 Butt...	9¾	4¾	2¾	38.00
Zacinow	22864	20 Butt...	11	4¾	2¾	42.00
Zacinox	22865	24 Butt...	12¼	4¾	2¾	46.00

Larger sizes furnished in multiples of four. See paragraph on instructions for ordering. Each instrument is provided with 6 feet of green silk flexible cable connected to terminal block with buzzer attached.

No. 934, Movable Type, with Metal Standard.

No. 947, "Eversure" Attached to Equipoise Arm.

No. 933, "Eversure" Movable Type, with Portable Desk Stand.

No. 936, "Eversure" Interior Type, with Hand Microphone.

TELEPHONES.

"EVERSURE" AUTOMATIC TELEPHONE S.

"EVERSURE" DESK STYLES—Continued.

NO. 934, COMBINED SWITCH AND DESK STAND.

This style consists of the switching mechanism, to which is attached the desk type standard. The engaged button is released on replacing receiver on the desk stand.

Code Word.	List No.		List Price, Each.
Zacimuy	22671	8 Button	$30.00
Zacimuz	22672	12 Button	34.00
Zacina	22673	16 Button	38.00
Zacinab	22674	20 Button	42.00
Zacinac	22675	24 Button	46.00

NO. 947, "EQUIPOISE" TELEPHONE.

This is the same general style as No. 937, except that the "Equipoise" arm is arranged for flat top desk. This same style can be adapted to roll top desk.

Zacinad	22676	8 Button	28.00
Zacinaf	22677	12 Button	32.00
Zacinag	22678	16 Button	36.00
Zacinah	22679	20 Button	40.00
Zacinak	22680	24 Button	44.00

NO. 933, MOVABLE CABINET TELEPHONE.

This type is composed of a movable cabinet having a felt bottom which contains the mechanism, and with a portable desk stand. The engaged button is released upon placing the receiver on the desk stand.

Adapted to either roll or flat top desks.

Zacinal	22681	8 Button	30.00
Zacinam	22682	12 Button	34.00
Zacinan	22683	16 Button	38.00
Zacinap	22684	20 Button	42.00
Zacinar	22685	24 Button	46.00

NO. 936, DESK INTERIOR TELEPHONE.

This style can be placed in the interior of the desk and enables the 'phone to be locked during the absence of the user. The hand microphone makes the most practicable talking set. This type may be, if preferred, attached to a flat top desk with the lugs shown.

Adapted to either roll or flat top desk.

Zacinas	22686	8 Button	30.00
Zacinat	22687	12 Button	34.00
Zacinav	22688	16 Button	38.00
Zacinaw	22689	20 Button	42.00
Zacinax	22690	24 Button	46.00

COLLAPSIBLE BRACKET TYPE.

This form can be extended 15 inches and could be used either on the roll or flat top desk. In the latter style it can be swung from one side to the other for the use of two persons. Buzzer call if preferred and so stated. See Bi-Une type, page 3.

NO. 938 FOR ROLL OR 948 FOR FLAT TOP DESK.

Zacinay	22691	8 Button	26.00
Zacinaz	22692	12 Button	30.00
Zacine	22693	16 Button	34.00
Zacineb	22694	20 Button	38.00
Zacinec	22695	24 Button	42.00

Larger sizes furnished in multiples of four.

See paragraph on instructions for ordering.

Each instrument is provided with a 6 foot green silk flexible cable connected to terminal block, with buzzer attached.

TELEPHONES.

"EVERSURE "AUTOMATIC TELEPHONES.

"EVERSURE" TELEPHONES, WITH FLOOR STANDARDS.

NO. 951, STATIONARY CABINET, WITH PORTABLE DESK STAND.

No. 951 "Eversure" Floor Standard Type Used with Portable Desk Stand.

This style consists of the Eversure attached to a hollow metal standard through which passes the cable to the floor below and a portable desk stand. Replacing the receiver on the hook releases the engaged button.

Code Word.	List No.		List Price, Each.
Zacined	22811	8 Button	$32.00
Zacinef	22812	12 Button	36.00
Zacineg	22813	16 Button	40.00
Zacineh	22814	20 Button	44.00
Zacinek	22815	24 Button	48.00

Larger sizes furnished in multiples of four.

See paragraph on instructions for ordering.

No. 955 "Eversure" Floor Standard, with Hand Microphone.

NO. 955, STATIONARY CABINET, WITH HAND MICROPHONE.

The Hand Microphone is used with the talking sets in this style. Its use assures a comfortable position while conversing.

Zacinel	22816	8 Button	32.00
Zacinem	22817	12 Button	36.00
Zacinen	22818	16 Button	40.00
Zacinep	22819	20 Button	44.00
Zaciner	22820	24 Button	48.00

Larger sizes furnished in multiples of four.

See paragraph on instructions for ordering.

No. 961 "Eversure" Double Station Combination.

NO. 957, EQUIPOISE ARM TELEPHONE.

In this style the Equipoise arm is attached to the floor standard, with the telephone attached to the arm. In this case the instrument can be used in a standing position.

Zacines	22821	8 Button	32.00
Zacinet	22822	12 Button	36.00
Zacinev	22823	16 Button	40.00
Zacinew	22824	20 Button	44.00
Zacinex	22825	24 Button	48.00

Larger sizes furnished in multiples of four.

See paragraph on instructions for ordering.

NO. 961, DOUBLE STATION COMBINATION.

The Eversure can be so arranged that officials or heads of departments having a secretary, stenographer or clerk at hand, can be relieved of calling stations or answering calls from parties with whom they may not desire to converse. This feature is fully described in our special pamphlet on the Eversure. These are not what is termed "multiple."

Zaciney	22826	8 Button	40.00
Zacinez	22827	12 Button	44.00
Zacini	22828	16 Button	48.00
Zacinib	22829	20 Button	52.00
Zacinic	22830	24 Button	56.00

Larger sizes furnished in multiples of four.

See paragraph on instructions for ordering.

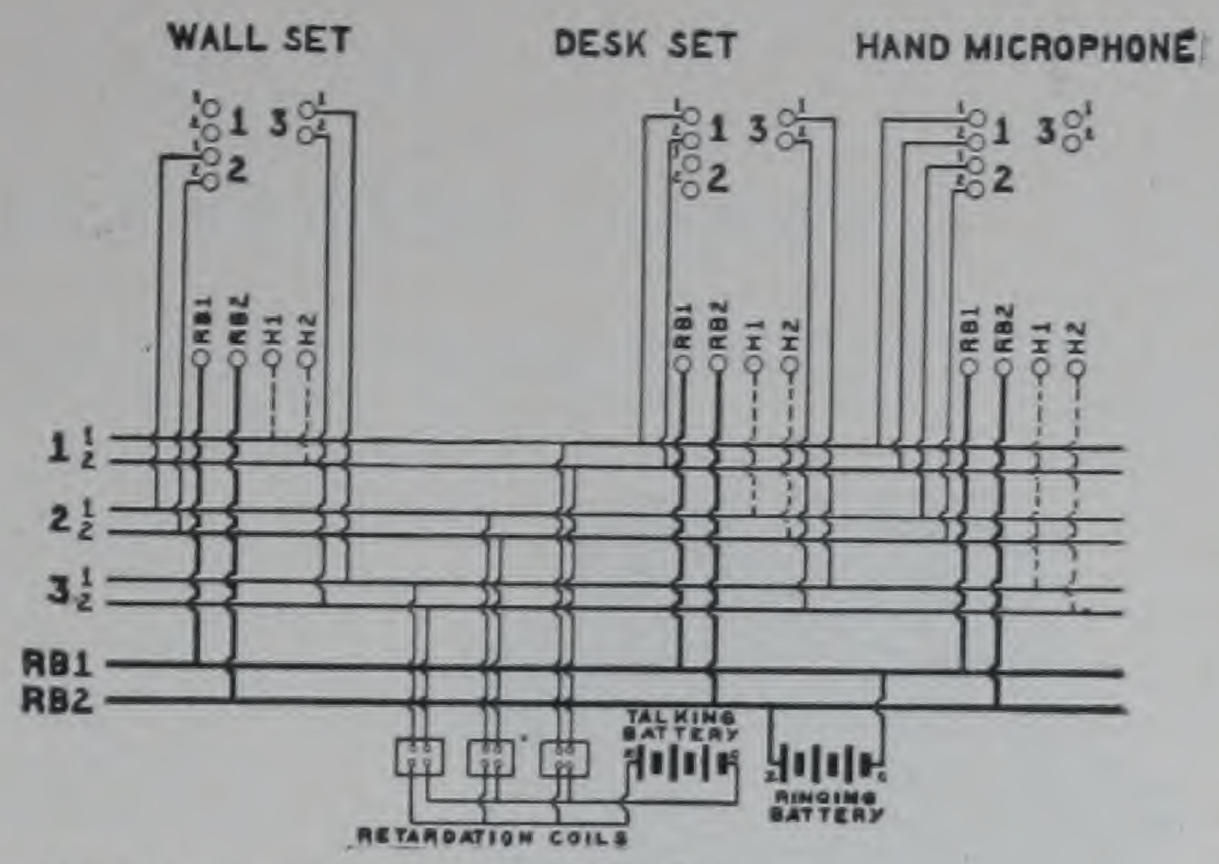
WIRING DIAGRAMS.

EVERSURE, AUTOMATIC TELEPHONES.

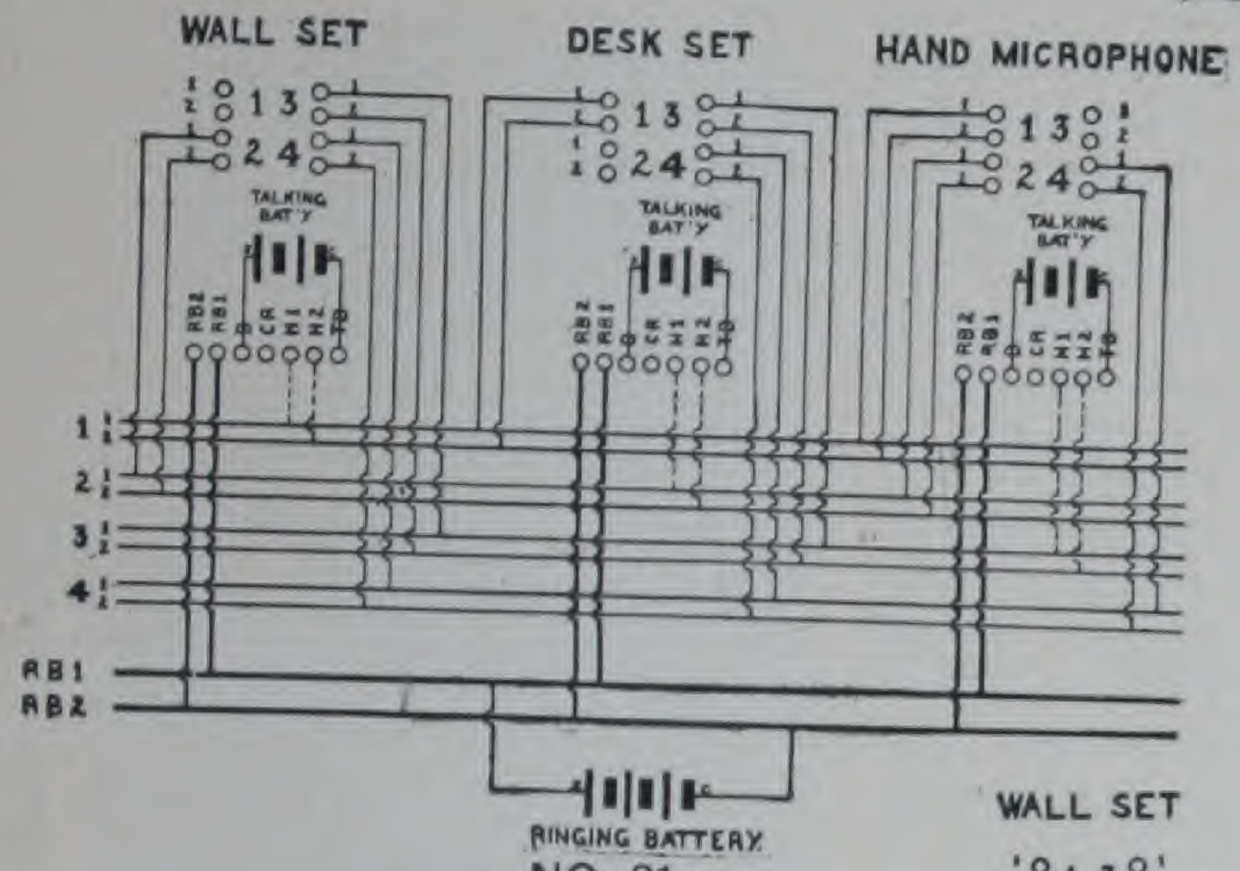
DIAGRAM NO. 20.

METALLIC CIRCUIT.

Centralized Ringing and Talking Batteries.



NO. 20.



NO. 21.

DIAGRAM NO. 21.

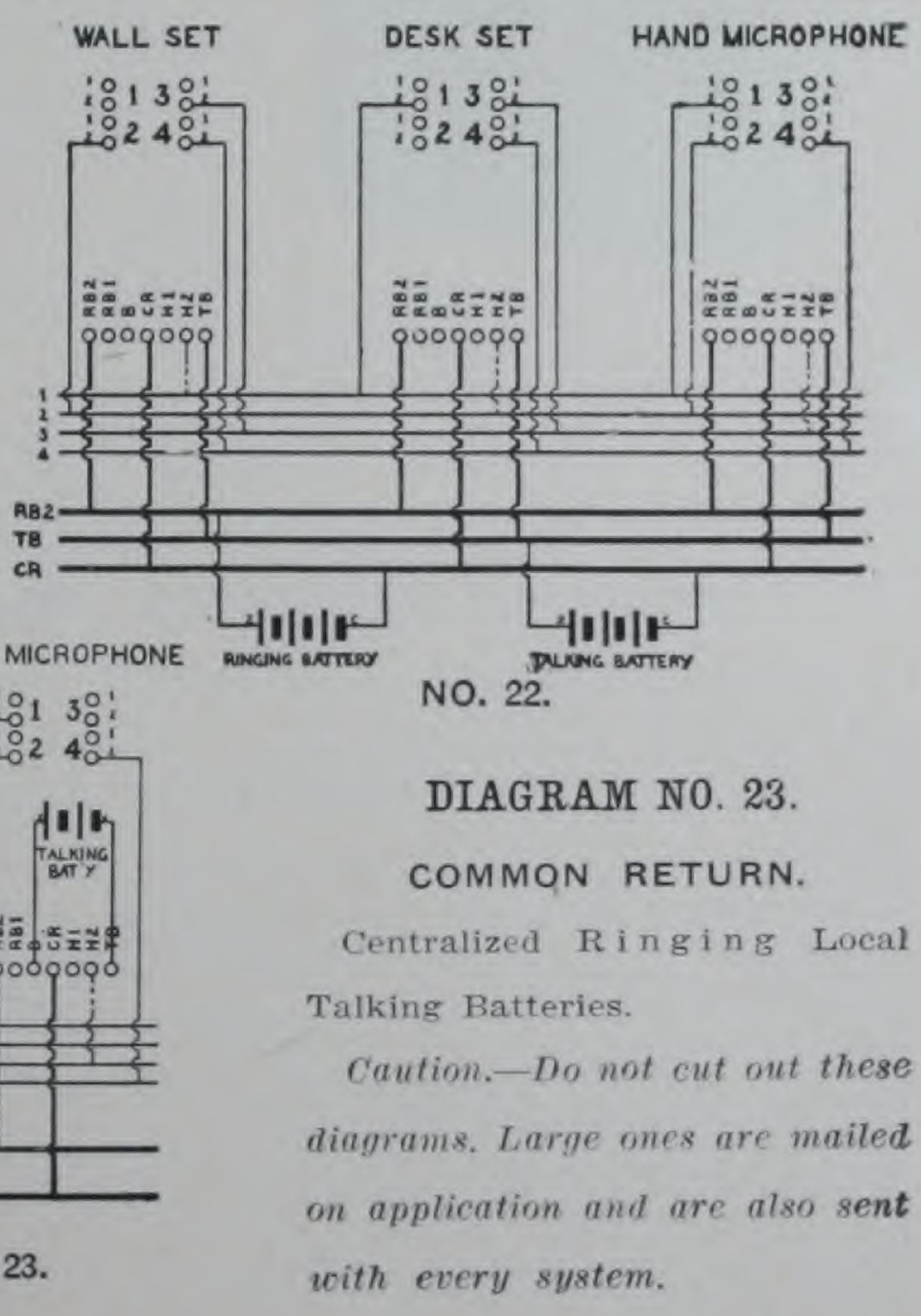
METALLIC CIRCUIT.

Centralized Ringing Local Talking Batteries.

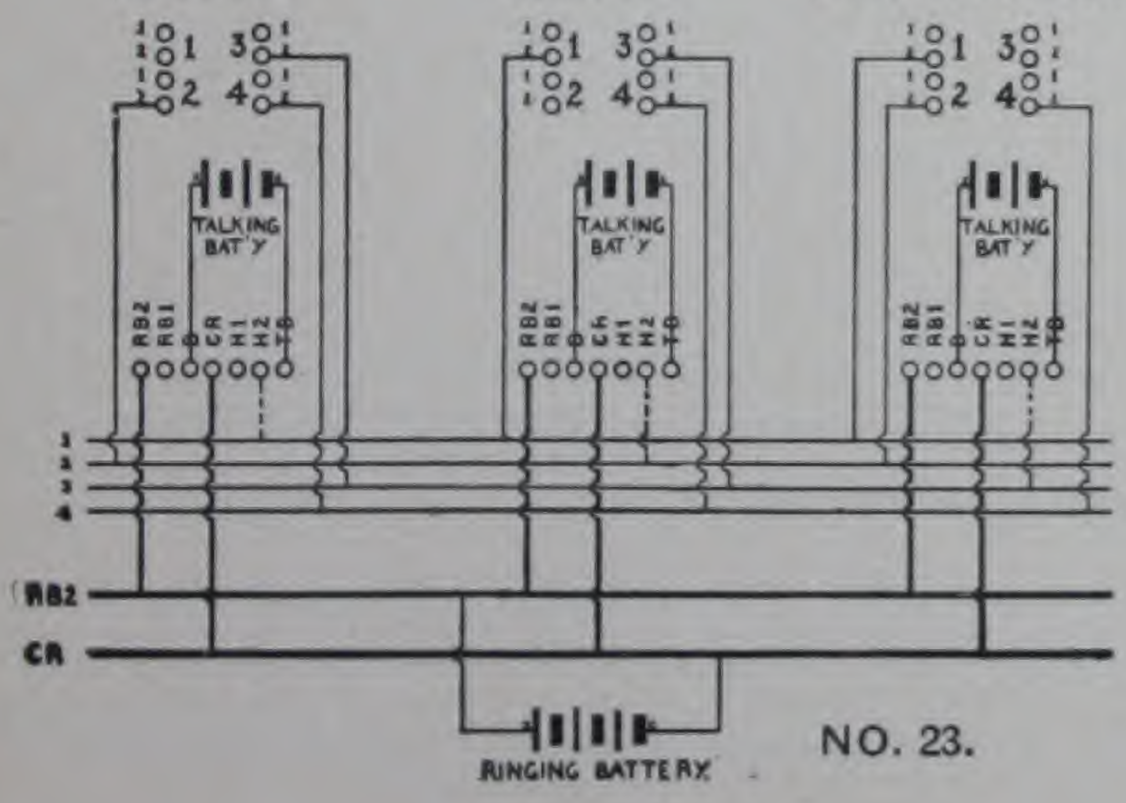
DIAGRAM NO. 22.

COMMON RETURN.

Centralized Ringing and Talking Batteries.



NO. 22.



NO. 23.

DIAGRAM NO. 23.

COMMON RETURN.

Centralized Ringing Local Talking Batteries.

Caution.—Do not cut out these diagrams. Large ones are mailed on application and are also sent with every system.

TELEPHONES.

MUNICIPAL TELEPHONE EXCHANGE CONNECTION.

The ability to connect any station of a privately owned intercommunicating interior telephone system with subscribers of the Municipal Telephone Exchange or over Long Distance lines controlled by the Exchange, immensely increases the value of the system. This service can be secured without any additional expense in one type of telephone, and with but a small outlay over the price of the regular apparatus in the other styles.

"Eversure" Automatic.

No special mechanism necessary in making "Exchange" Connections. One or more buttons can be used for as many "trunks."

If the Municipal Exchange is "central energy" (where the switchboard operator is signalled by simply removing the receiver from the hook) employees can make "out calls" either under supervision of the person in charge of what is termed the "monitor station" situated at the side of the Municipal Exchange telephone in the office, or can be given the privilege of unlimited "out calls." When the service is not supervised it is liable to result in the system being used for personal conversations, thus retarding business communications. It is possible to limit the use of the outside service to certain specified stations, and also to quickly discontinue the privilege of outside service by merely disconnecting wires at two terminals.

Every "in call" to the different "Eversure" stations is made through the person in charge of the "monitor station." The calls cannot be made direct from the Municipal switchboard to selected "Eversure" stations. First, for the reason that the "Eversure" stations are not provided with polarized ringer bells, and also because it would be impossible to select the "Eversure" station desired.

Where the Municipal Exchange is "magneto" (where a crank must be turned to call the switchboard operator) it is necessary that both "out" and "in" calls be in charge of the party at the "monitor station," as the "Eversure" stations are not provided with either polarized ringer bells or generators. It is possible to use our Magneto "Eversure" automatic telephone which will permit each station calling direct to the Municipal Exchange.

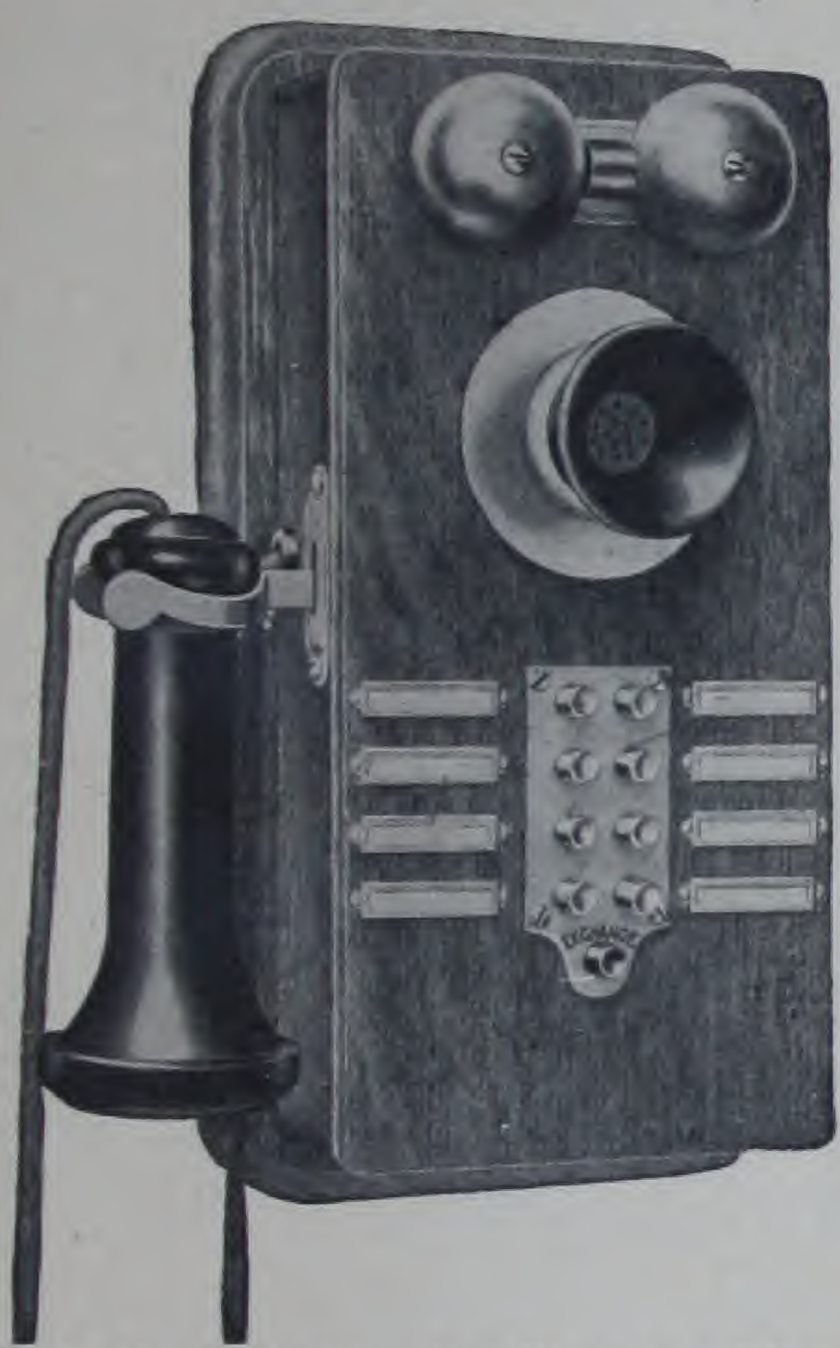
"EVERSURE" TELEPHONES (WIRED METALLIC CIRCUIT).

If the "Eversure" to be installed is of the metallic circuit type, and the system wired strictly metallic circuit (which is a method we always strongly recommend) any "Eversure" telephone on the system can be connected with the Exchange Trunk Lines without the addition of a special "exchange button," which is necessary in all other makes of intercommunicating telephones advertising Exchange service: in other words, the regular instrument can be used with no extra expense for a special "exchange button." As there is no change necessary where a metallic circuit "Eversure" system has been installed, it has the greater advantage that if more than one Trunk Line is found necessary additional lines can be carried to the springs used in conjunction with any button on the 'phone. The advantage in installing the "Eversure" wired metallic circuit is that while the outside service may not be desirable, or possible to secure when the "Eversure" is installed, at some later period it may be found necessary, in which case Trunk lines can be connected up to the different stations without change of telephones or wiring. It is always well in ordering the "Eversure" instruments to see that there are enough extra buttons to take care of possible Exchange lines, for when the buttons are used for Trunk lines the same button cannot be used for interior service. The "Eversure" metallic circuit telephone is the only make of instrument used for outside service which does not have the talking battery feed wire of the interior system permanently connected to one leg of the Exchange Trunk line. This is dangerous, for should a partial or dead "ground" occur on the interior system it would immediately unbalance the Trunk lines to the Exchange.

TELEPHONES.

MUNICIPAL TELEPHONE EXCHANGE CONNECTION—(Continued).

Owing to the special "non-interfering lock out" device which forms a part of every "Eversure" telephone (see description on Page 5), when a station is conversing over the outside lines no other station can, by depressing the button of the station using the Trunk lines, disturb the party by "ringing in his ear" or overhear the conversation taking place. This severance of the Exchange wiring and the interior is secured by means of the "non-interfering lock out" device mentioned above.



"Bi-Une" Automatic, Showing "Exchange" "Trunk" button.

MONITOR STATIONS.

One of the intercommunicating telephones of whichever type is selected ("Eversure" metallic circuit, "Eversure" common return, or the "Bi Une") is placed at the side of the leased telephone belonging to the Municipal Exchange, and is called the "Monitor" station. As these two 'phones are usually located in the office, an inexpensive clerk, whose regular duties consist of ordinary office work, can be used to perform the simple manipulations necessary to combine the interior and outside systems. A convenient combination on this clerk's desk consists of a desk type outside 'phone supported on an "Equipoise" arm (see Page 52) and the No. 947 "Eversure" or No. 847 "Bi Une" desk types for the interior system. This admits of the instruments being used by the clerk in a sitting position and by other parties standing. This arrangement allows conversation to take place over the intercommunicating system and at the same time using the Municipal phone to the Exchange.

"EVERSURE" TELEPHONES (WIRED COMMON RETURN).

When the "Eversure" system is installed, and wired common return, it is necessary to so state in ordering, also giving the number of Trunk lines it is desired to connect, as special contact springs are necessary with each button which is to be used in connection with the outside service equipment. All of the other advantageous features of the "Eversure" metallic circuit are combined in this system.

The wiring diagrams shown are for the "metallic circuit" "Eversure." Diagrams for this "C. R." system are supplied on request.

THE "BI UNE" TELEPHONE.

This intercommunicating telephone can be provided with an outside service button to connect to the Municipal Exchange. Note illustration which shows the special button placed at the lower portion of the button plate. Note the description of the "Bi Une" intercommunicating telephone on Pages P to 4.

WIRING.

The wiring diagrams on the succeeding page are for the "Eversure" wired "metallic circuit." We furnish, however, blue prints with the wiring used for the "Eversure" telephone wired "common return" and also for the "Bi Une" to connect up the systems to the Trunk lines of the Municipal Exchange.

TELEPHONES.

MUNICIPAL TELEPHONE EXCHANGE CONNECTION.—Continued.

TYPE 1, CENTRAL ENERGY.

In this type an "Eversure" intercommunicating telephone wired "metallic circuit" is placed at the side of the leased Municipal Exchange telephone. The "out calls" in this type are not supervised. All stations have unrestricted use of out calls over the outside service lines.

"OUT CALLS." A party of any "Eversure" station, desiring to communicate over the Municipal Exchange lines, depresses the button which has been designated and marked the "Exchange button," and then lifts the receiver, which signals the Exchange operator. If the line is busy and there are two Trunk lines from the Exchange, the other exchange button is depressed.

"IN CALLS." The Monitor station attendant first answers the ring of Central on the Municipal Exchange 'phone. If the party desired can be called at an "Eversure" station the attendant (without replacing the receiver) depresses the proper button in the Monitor "Eversure" telephones and instructs the party who answers to depress the Exchange button at that 'phone. The Monitor attendant first replaces the "Eversure" receiver and then the receiver of the Exchange Co.'s telephone. The "Eversure" station is then in direct communication with the calling party from the Municipal Exchange. On the conversation being terminated, replacing the receiver at the "Eversure" station automatically gives the disconnect signal to the Exchange operator, and restores both systems to their normal condition.

TYPE 2, CENTRAL ENERGY.

The two telephones in this type are located the same as in Type 1, but the unrestricted use of the "out calls" is not allowed. The Monitor attendant attends to all "in" and all "out calls." It is frequently deemed advantageous as it eliminates the abuse of personal calls, which tie up the Trunk lines for business use.

"OUT CALLS." An "Eversure" station desiring to communicate over the outside Exchange lines first depresses the button corresponding with the Monitor "Eversure" station, and informs the operator the number of the outside station desired. The Monitor station calls the Municipal switchboard operator by lifting the receiver, of the Leased Line Telephone, and when the number desired is secured, instructs the calling "Eversure" station to depress the Exchange button. The Monitor attendant then pushes over the Monitor switch, which completes the connection between the two parties. After the conversation is finished, which is ascertained by the Monitor "listening-in" or by means of a code signal given by the "Eversure" station connected up, the Monitor attendant breaks the connection by returning the Monitor Switch to normal position.

"IN CALLS." The operation of "calling in" is the same as described in Type No. 1 except that it is necessary for the Monitor station to throw over the Monitor switch in order to "cut in" the Trunk line.

TYPE 3, MAGNETO.

The location of the "Eversure" and the Municipal telephones is the same as above described. The "out" and "in calls" are necessarily controlled by the Monitor attendant, as there is, of course, no means for the Municipal Exchange operator to ring the "Eversure" station, and no generator at the "Eversure" station to ring the Municipal Exchange operator.

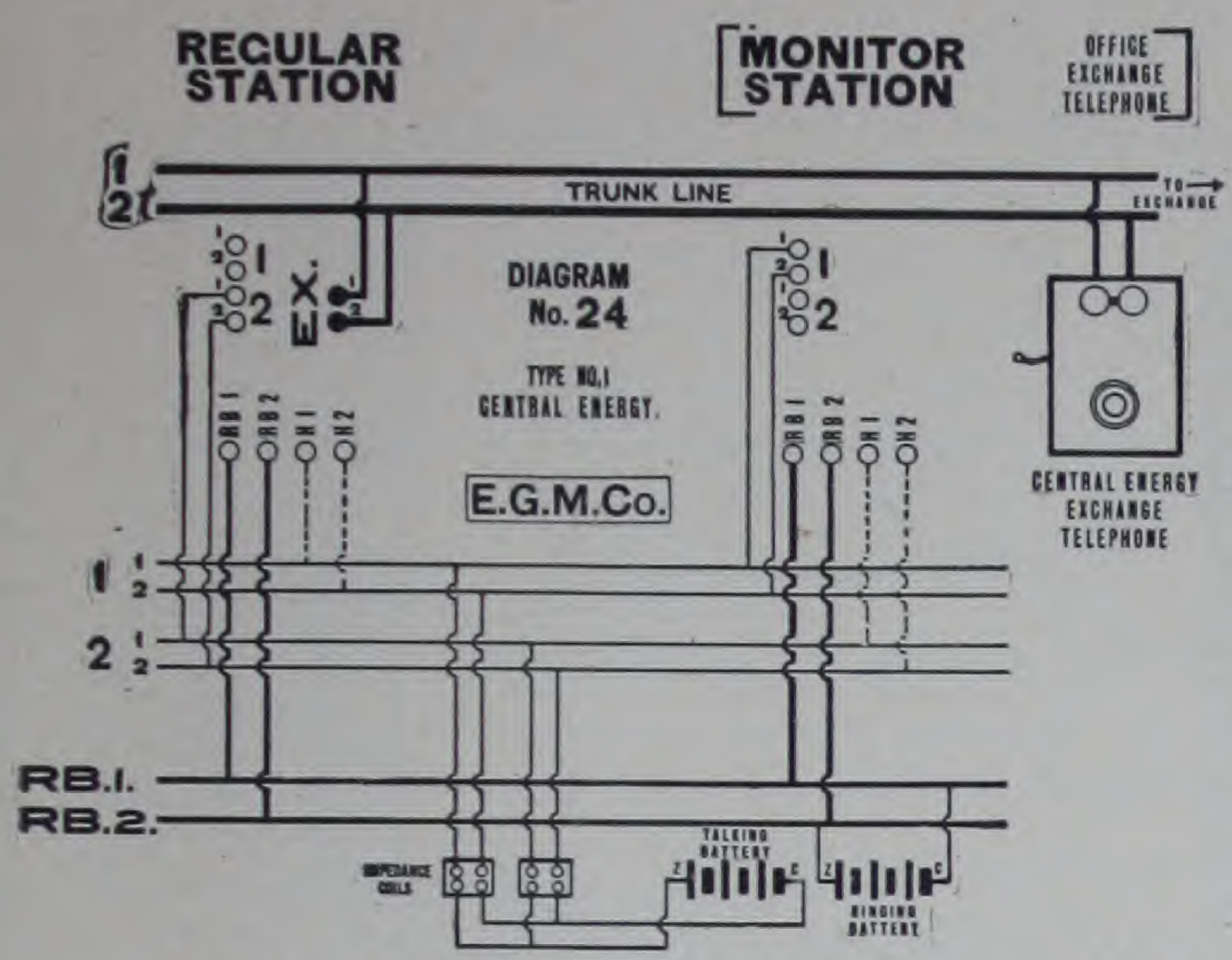
"OUT CALLS." These are made in the same way as the "out calls" in Type 2, except that the Monitor switch is not used.

"IN CALLS." The "in calls" of this type are handled in the same way as the "in calls" in Type 1.

Transformer device required for Type 3.

EXCHANGE CONNECTION PRICE LIST.

Code Word.	List No.		List Price, Each.
Zacocow	24801	For the "Eversure" telephone wired metallic circuit	No charge
Zacocor	24797	For the "Eversure" telephone wired common return, extra per Trunk Button	$2.00
Zacocos	24798	For the "Bi Une" telephone wired common return, extra per Trunk Button	2.00
Zacocot	24799	Monitor Switch for supervised "out calls" on C. E. Exchange	5.00
Zacocov	24800	Transformer device for Magneto Exchange	10.00



TYPE NO. 1.

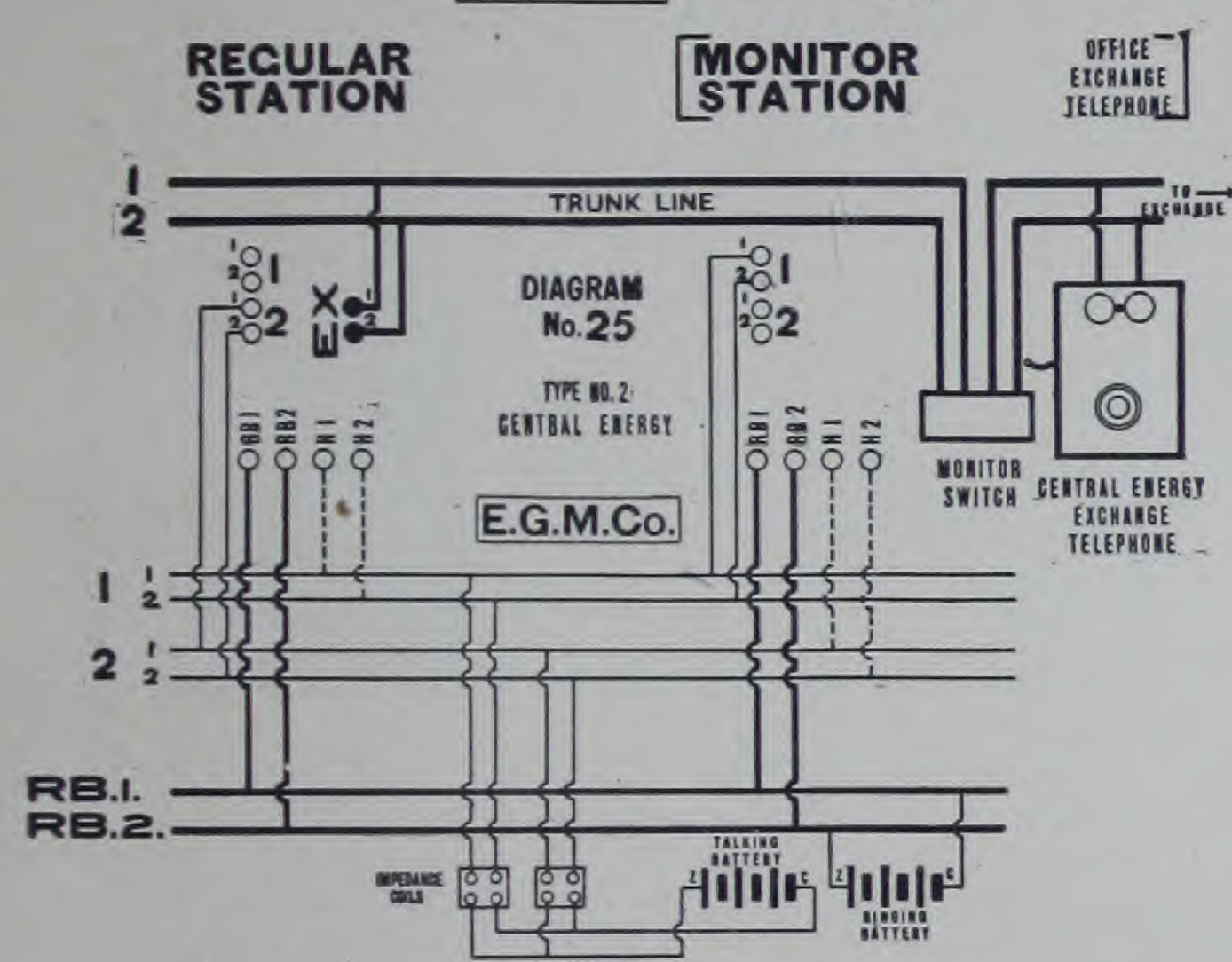
DIAGRAM NO. 24.

Wiring diagram used in connecting an "Eversure" metallic circuit intercommunicating system to a "Central Energy" Municipal system when the calls are handled as below:

"Out Calls" unsupervised.

"In Calls" supervised.

Separate wiring diagrams are supplied where the "Eversure" is wired common-return, and for the "Bi-Une."



TYPE NO. 2.

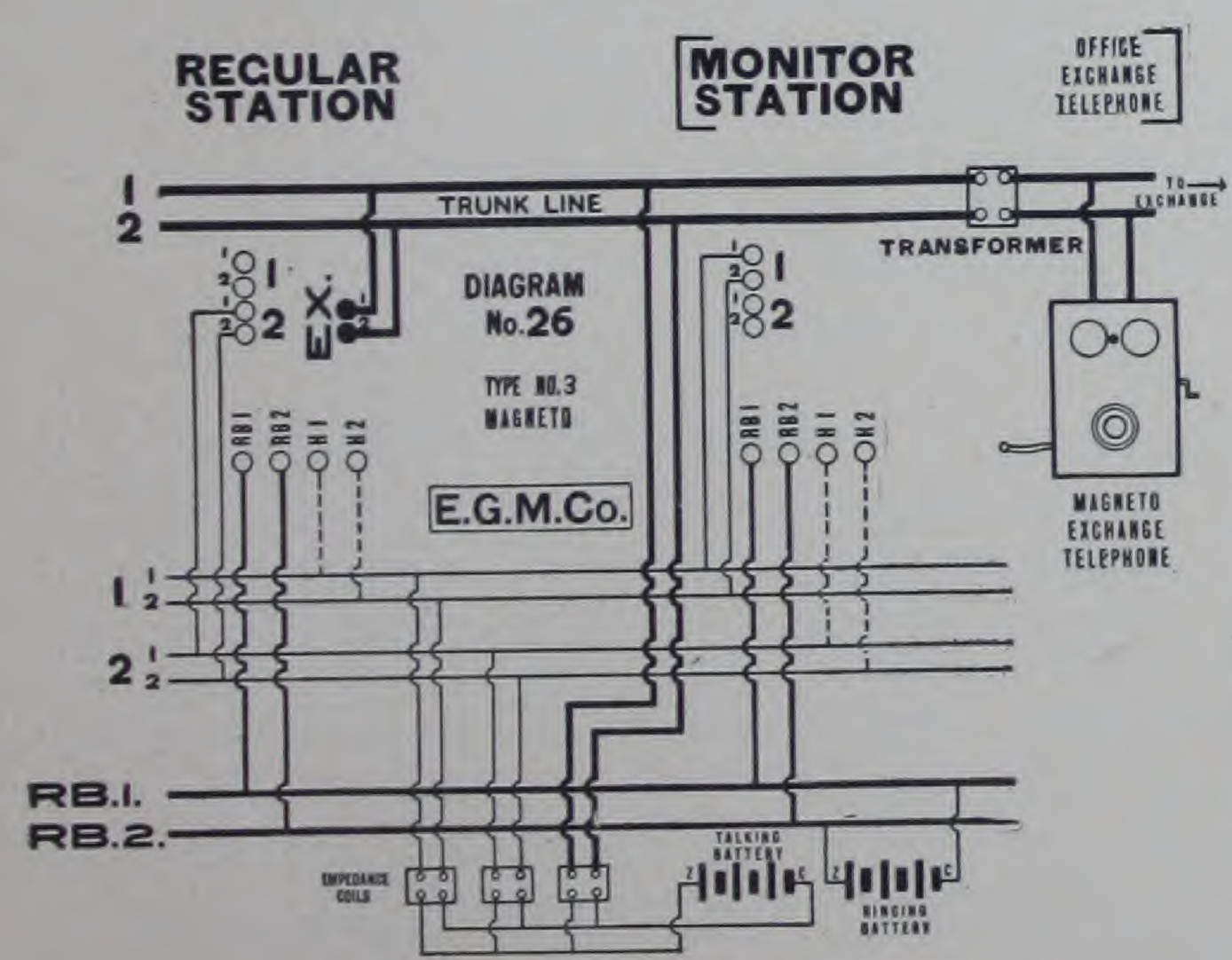
DIAGRAM NO. 25.

Wiring diagram used in connecting an "Eversure" metallic circuit intercommunicating system to a "Central Energy" Municipal system when the calls are handled as below:

"Out Calls" supervised.

"In Calls" supervised.

Separate wiring diagrams are supplied where the "Eversure" is wired common-return, and for the "Bi-Une."



TYPE NO. 3.

DIAGRAM NO. 26.

Wiring diagram used in connecting an "Eversure" metallic circuit intercommunicating system to a "Central Energy" Municipal system when the calls are handled as below:

"Out Calls" supervised.

"In Calls" supervised.

Separate wiring diagrams are supplied where the "Eversure" is wired common-return, and for the "Bi-Une."

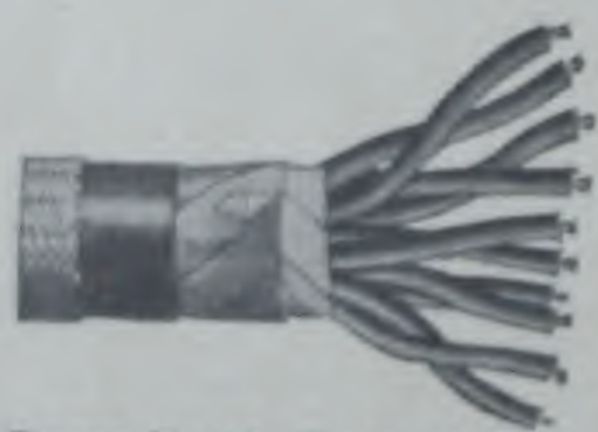
TELEPHONE ACCESSORIES.

"EVERSURE" INTERCOMMUNICATING TELEPHONE ACCESSORIES.

Bi-Plan Back-Boards.

"Safeguard" Junction Box.

No. 3 Samson Battery.



Damp-Proof, Twisted Pair "Safeguard" Cable.

Water-Proof, Common Return "Safeguard" Cable.

"BI-PLAN" BACK-BOARDS.

Wherever "Eversure" telephones are installed and the wiring is not concealed this back-board makes the most practicable means of elevating the telephone for bringing in the cable. It is the work of but a moment for the contractor to groove the back-board and to bring the cable in from below or above or from both directions. This displaces the cast iron style, which did not conform to the wood cabinet in color and left a hole for bugs to enter.

"SAFEGUARD" JUNCTION BOXES.

This device saves time in making the taps and furnishes rapid means of testing. It is the best and only device of its kind. It gives a more positive connection than soldering, as it is frequently done. Four terminals are provided on each connecting strip, thus enabling two taps to be made from the main cable. Four connecting strips are furnished for common return wires in the common return style of box, and two for the ringing battery wires, and two spares in the metallic circuit style of box. A cover is provided for each box. See page 55 for complete description and price list.

NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The cells crack if the wax top allows the moisture to escape, shortly resulting in a "dead" cell, while they are notoriously ununiform in output. Low amperage or voltage in one cell also reduces all cells to the same degree of inefficiency. The No. 3 Samson has proven wonderfully effective for all telephone work, particularly intercommunicating, where use quickly depletes the ordinary open circuit cell.

The No. 3 Samson Battery, per cell, $2.00.

"SAFEGUARD" CABLE.

This cable is a great economizer in installing telephones over use of separate wires. The saving in time is very pronounced, more than making up for the additional cost per foot of the cable, and in addition makes a much neater job. This cable is made in both damp-proof and water-proof types, and for "common return" and "twisted pair" systems of wiring. See pages 60 and 61 for complete description and price list.

TELEPHONES.

Ross "Avonial" Annunciator.

KITCHEN ANNUNCIATOR TELEPHONE SYSTEM.

This system enables any push button to be replaced by a telephone and communication secured with a telephone located in the same room with the annunciator without any change in wiring. In this system, however, the call can only be made from the outlying telephone to the annunciator, and not in the reversed direction. First, as there are no push buttons located at the annunciator, and second, because there are not sufficient conductors in the ordinary annunciator wiring (Diagram No. 1). This system also furnishes the cheapest system for a small hotel where the proprietor desires that the guests being able to call and communicate with the office, but where he does not wish to go to the expense of additional wiring to enable the clerk to call the room.

NO CHANGE IN WIRING.

Any simple annunciator system already installed can be easily changed to operate as a telephone system, and as many or few telephones can be installed as is desired. In other words—push buttons can be retained in certain locations where telephones are not necessary. By referring to the diagram it will be noted that, in making the change from the ordinary annunciator to the telephone system at the outlying stations, the wires from the push buttons are reconnected to the terminals on the telephone, the tap from the common return wire being connected to "X," while the circuit wire is connected to "A." The battery wire from the "B" post on the annunciator to the batteries is broken at a point where the annunciator telephone is to be placed and reconnected to terminals "X" and "B" on 'phone. An additional wire is then run from terminal "T" of this telephone to the "Ground" or common side of all the drops; that is, the bell coils should not be included in this circuit, as they would cause the bell to ring during conversation.

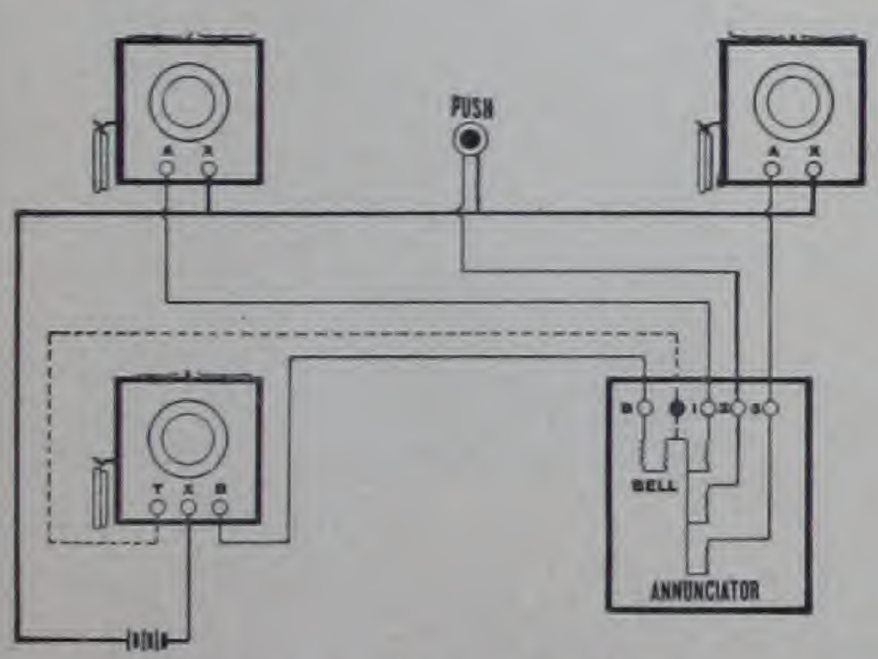
We are about to change all our annunciators so that a terminal will be provided for this additional wire which will save the contractor opening the annunciator and making connection with the wire from the "Ground" or zinc plate as is necessary in instruments already installed.

No. 201 Telephone. Annunciator Telephone has no Push Button.

TELEPHONES.

In ordering telephones for this system (No. 7) it is necessary to refer to the system, otherwise we have no means of knowing how the telephones should be wired. Note that one more telephone (at annunciator) is necessary than the total number of outlying stations provided with telephones.

As no signalling is possible between annunciator and outlying stations and these station signs by ringing annunciator bell, all telephones are furnished without bells.



Wiring Diagram No. 7.

TELEPHONES.

No Bells Furnished.

Code Word.	List No.		List Price, Each.
Zacifof	19826	No. 201, telephone for No. 7 wiring	6.50
Zacifog	19827	No. 250, telephone for No. 7 wiring	6.50
Zacifoh	19828	No. 401, telephone for No. 7 wiring, flush	9.50
Zacifok	19829	"Universo" Outlet Box for above	1.00
Zacifol	19830	No. 701, telephone for No. 7 wiring	9.50

List price does not include bells.

TELEPHONES.

"UTILAPHONE."

APARTMENT HOUSE TELEPHONE SYSTEMS.

We have had a wide experience in these systems, having built them for the smallest and for the largest apartment buildings, some including 100 suites or more, and have furnished all kinds of service from the simplest, giving communication between vestibule and suite only, to those admitting of communication to janitor, maid, restaurant, laundry, and also from suite to suite. This experience makes us thoroughly acquainted with all the practical details in connection with the installation of this apparatus.

The renting value of the apartment building in which telephones are installed, in comparison with the cost of the same, is greatly in favor of the investment involved—in fact, it may be termed a necessity, as speaking tubes are both unsatisfactory in their operation and are in addition manifestly unsanitary. When the apartment building covers a considerable area, or is over three stories in height, the installation of speaking tubes is absolutely prohibitive, as the voice cannot be carried satisfactorily any considerable distance through the speaking tube. The combining of the Door Opener push button with the suite telephone enables the tenant to instantly open the door after receiving the call from the vestibule.

SYSTEMS.

As described below, apartment house telephones can be supplied for either the Common-Talking or Non-Interfering systems of wiring. We are also prepared to devise special systems to accomplish results not mentioned in our regular stock styles. A statement of just what is desired would be necessary in order to intelligently suggest the best method of accomplishing the desired results.

NO. 1 COMMON TALKING.

This system furnishes the advantage of telephonic communication, but includes the disadvantage of making eavesdropping possible, which objection has always been one of the most prominent in the use of the ordinary speaking tube. In the Common Talking system any suite, upon hearing the bell of any suite ring, may, by lifting the receiver, overhear the conversation taking place between the vestibule and suite. We therefore deem it inadvisable, if a Common Talking system is to be installed, to extend the service beyond communication between vestibule and suite, for it will at once be realized that if additional stations, such as janitor, maid, laundry, etc., should be included, that a party about to use the vestibule telephone would by placing the receiver to the ear overhear what might be private conversation taking place between such stations, and in addition a person visiting the vestibule would be obliged to wait until the conversation taking place over the interior system is terminated before it would be possible to call and converse with the suite desired.

NO. 2 NON-INTERFERING.

The Non-Interfering system is the most desirable and practicable apartment house telephone system, as it overcomes the disadvantages described in the No. 1 Common Talking system, and furnishes a strictly private conversation; for instance, any conversation taking place between vestibule and suite, or between any other of the stations which may be included in the system, is rendered by the Non-Interfering system strictly confidential. It is also possible for conversations to take place at the same time between any combination of stations.

TELEPHONES.

"UTILAPHONE" APARTMENT SYSTEM.

VESTIBULE TELEPHONE EQUIPMENT.

Type No. 1 "Utilaphone." Movable Hook.

Our Vestibule Telephone is made with special reference to the preservation of uniformity in connection with the use of our special "Utilaphone" letter box. The telephone is the same height as the letter box, and the ordinary size is twice the width, while the larger sizes are three times the width of the letter box, and the corners of the telephones and boxes are all of the same radius. This results in perfect harmony between the different parts. The Transmitter mouthpiece in all cases is made of solid cast metal, and the receiver cap used is of a patented reinforced type, the composition being moulded around the metal supporting plate, while the edge is protected by a fibre ring moulded in the cap. Carefully drawn half size blue prints, showing the method of installation of the letter box in combination with the telephone are supplied to purchasers.

We manufacture Vestibule Telephones for both No. 1 Common Talking and the No. 2 Non-Interfering systems; in three different types of transmitter and receiver combinations—Type 1, Type 2 and Type 3—described below, and in two stock sizes—size "A" and size "B," and special sizes when required.

Type No. 2 "Utilaphone." Stationary Hook.

No. 1 Common Talking.

For this system we use in the Vestibule Telephone the ordinary single point button with a push centre of metal, nickel plated.

No. 2 Non-Interfering.

In the Non-Interfering system we utilize our Bi-Une Automatic Switching mechanism.

TYPES.

Type No. 1 Vestibule Telephone.

This style is made with a movable switch hook. The receiver cord is reinforced by a chain, and made for both No. 1 Common Talking and No. 2 Non-Interfering systems.

Type No. 3 "Utilaphone." Flexible Metallic Tubing.

Type No. 2 Vestibule Telephone.

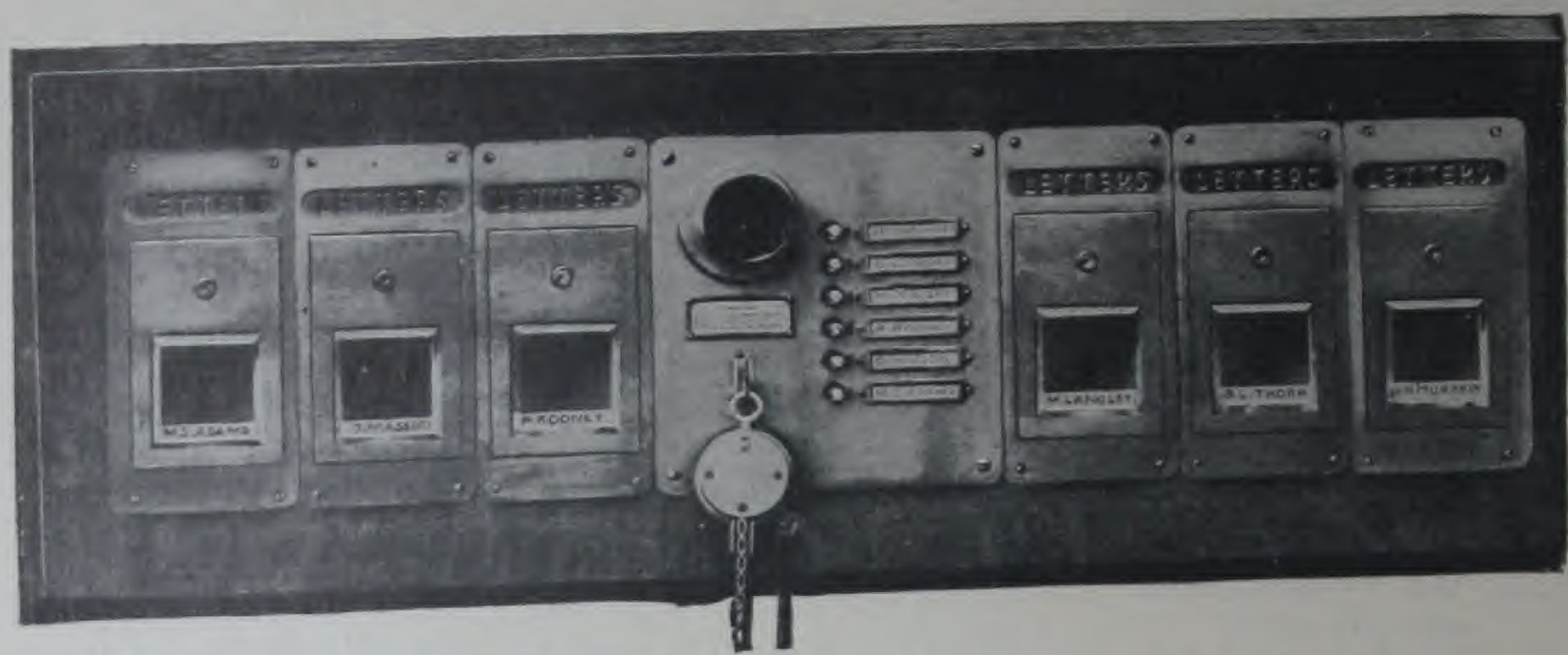
Stationary Switch Hook. It obviates the possibility of the hook becoming bent and rendering the system inoperative. The receiver cord is protected by a chain as in Type No. 1. This type can be used with either No. 1 Common Talking or No. 2 Non-Interfering system.

Type No. 3, Vestibule Telephone.

The hook is discarded. The receiver is attached to a plate by means of a flexible metal tubing, hard soldered to the receiver and to the entrance bushing. This instrument is strong and causes the party visiting the vestibule to talk close to the transmitter, and reduces the possibility of the receiver being stolen. The receiver equipment is arranged so that it may be replaced by another equipment if necessary. This type can be used with either No. 1 Common Talking or No. 2 Non-Interfering Systems.

TELEPHONES.

"UTILAPHONE" APARTMENT HOUSE SYSTEM.



6 SUITE "UTILAPHONE" VESTIBULE TELEPHONE COMBINATION.

No. 1.
Center Letter Box.

No. 2.
Left-Hand Letter Box.

No. 3.
Right-Hand Letter Box.

Size "A". The size of this plate is 8¾ inches wide and 9 inches high. Ten buttons in a vertical row can be installed on this plate. In all sizes, if a Janitor's button is to be used, we utilize the lower button unless otherwise instructed, and number the buttons from 1 up, commencing at the bottom button. Card holders are placed at the side of the buttons of sufficient size to take the tenant's name cut from the ordinary visiting card.

Size "B". The size of this plate is 13⅛ inches wide and 9 inches high. Twenty buttons may be installed in two vertical rows of ten, the card holder being placed at the right and left of the buttons.

Special Sizes. In sizes over twenty, the height of the size "B" plate is increased ⅝-inch by each additional pair of buttons, which are arranged horizontally; for example, a Vestibule Telephone plate having 24 buttons would be 13⅛ inches wide and 10¼ inches high. This method of increasing the height of the plate when installing additional buttons in the vestibule telephone plate will be used unless otherwise instructed.

SYSTEM NO. 1, COMMON TALKING.

Type 1, 2 or 3.

Code Word.	List No.		List Price, Each.
Zacekeb	17833	3 Button, with Outlet Box	$16.00
Zacekec	17834	Additional Buttons, each	.50

See following pages for diagrams.

SYSTEM NO. 2, NON-INTERFERING.

Type 1, 2 or 3.

Zaceked	17835	3 Button, with Outlet Box	20.00
Zacekef	17836	Additional Buttons, each	.70

Wood Mats not supplied unless ordered. Price depends upon size.

If Janitor's button is desired, same must be stated when ordering. Three suite apartment with Janitor's button would therefore require four buttons. The above prices are for brush brass finish. Special finishes extra.

See following pages for diagrams.

TELEPHONES.

"UTILAPHONE" APARTMENT SYSTEM.

LETTER BOXES.

We have designed special Letter Boxes for use in connection with our "Utilaphone" Apartment House Telephone System. They are thoroughly well made in every particular and handsomely finished. The letter box opening is 3⅞ inches wide. They are so arranged that they can be used with either marble, tile or wood trim vestibule construction. There are three styles of boxes—center boxes, right and left hand boxes. Center boxes have a ½ inch flange extension top and bottom, while the right hand box has in addition to the flange on the top and bottom, a ½ inch flange on the right hand side, while the left hand box has the same top and bottom flange and a ½ inch flange on the left hand side. This method of construction is very advantageous where the boxes and telephones are to be placed on marble, as the extension flange covers any ragged edge which may be made by the workmen in cutting the necessary orifice. Half size diagrams showing the method of cutting the hole and installing these boxes with both wood and marble trim are supplied. Letter boxes can be arranged in combination with the vestibule telephones above, below and at the side, or the vestibule telephone can be located on one side of the wall and the letter boxes on the opposite side. The method of arrangement depends frequently upon the number of boxes to be used and the size of the vestibule. We can also furnish boxes having a spring hinge door and a knob with a spring catch instead of a lock, although we do not furnish guarantee that Postoffice authorities will allow their use.

Code Word.	List No.		List Price, Each.
Zacehuh	17798	Style 1, Center Letter Box, brush brass finish	$3.00
Zacehuk	17799	Style 2, Left Hand Letter Box, brush brass finish	3.30
Zacehul	17800	Style 3, Right Hand Letter Box, brush brass finish	3.30

SUITE TELEPHONE.

The Suite Telephone can be furnished in a number of different patterns. The No. 250 black enamel phone is sometimes used, but it is only possible to furnish one push button for operating the door opener. The No. 201 may also be used, but it is not as advantageous as is the following types, as the buttons, if two are used, are on the side and not as easily seen by the tenant. The No. 241 is a telephone made especially for apartment house use. It is a wood cabinet type with the push buttons arranged in the front of the case with plainly marked escutcheons. For high grade houses the No. 401 flush metal telephone or the No. 411 flush wood is advocated. These can also be fitted with three buttons, for instance, door opener, janitor, and maid or laundry.

See illustrations on following page.

Zacehup	17803	No. 250, Black enamel (W. C. receiver only)	7.00
Zacehur	17804	No. 201, Oak telephone, with one button	7.00
Zacehus	17805	No. 201, Oak telephone, with two buttons	7.30
Zacehut	17806	No. 241, Oak telephone, with three buttons	9.00
Zacehuv	17807	No. 401, Metal flush, brush brass, one button	10.00
Zacehuw	17808	No. 411, Wood flush, oak	10.00
Zacehun	17802	Extra buttons for No. 401 or No. 411 (limit three), extra, each.	.30
Zacehux	17809	No. 401, Iron Outlet Box for No. 401 or No. 411 phone	1.00
Zacehuy	17810	Short adjustable arm for either of the above styles, extra	1.00
Zacehuz	17811	Samson Transmitters, fitted to any of the above styles, extra	1.00
Zaceka	17812	Long Receivers, fitted to any of the above styles, extra	.50

TELEPHONES.

"UTILAPHONE" APARTMENT SYSTEM.

No. 201 Telephone, for Suite, Maid or Janitor Use.

Also furnished with Long Receiver.

MAID'S TELEPHONE.

The maid's phone is usually our No. 201, and as a rule it is so wired that the suite may call the maid, but the maid cannot call the suite.

Code Word.	List No.		Price List. Each.
Zacehot	17786	No. 201, maid's telephone, oak.....	$7.00

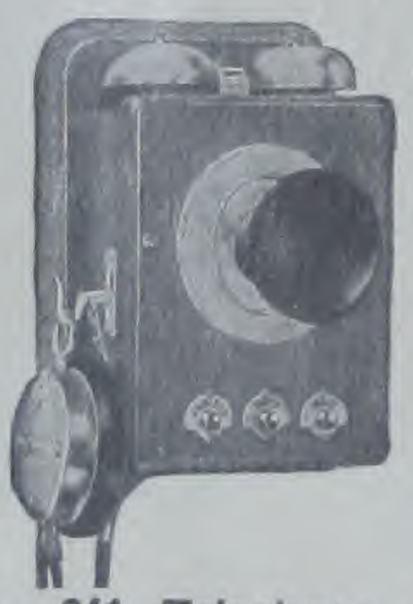
If any calling button is desired, so state.

LAUNDRY TELEPHONE.

The Non-interfering System No. 2 is preferred, permitting private and uninterrupted conversation between a suite and laundry while other conversations are being carried on between vestibule and suite, or some suite and janitor. A common-talking system can be furnished, but is never recommended except in very small systems where service is liable to be infrequent.

See description and price list of janitor's equipment on next page, which applies equally as well to the laundry station.

If no calling button to suite is desired, so state.



No. 241 Telephone, for Suite Use Only.

Also furnished with Long Receiver.

TRADESMAN'S TELEPHONE.

A telephone for the use of the grocer, provision man, etc., is now being installed in many apartment buildings, calling the suite phone or a maid's phone in the kitchen. The instrument is a duplicate of the vestibule telephone except that it is usually in the cheaper wood cabinet type, and is placed in the back hall or basement. See Janitor's Phone price list next page, or No. 351 for common talking and No. 391, No. 381 or "Bi-une" (preferable) for non-interfering.

INTER-SUITE COMMUNICATION.

In large and up-to-date apartment house systems Automatic Intercommunicating Telephones can be placed in the different rooms of the same suite for intercommunication between sections of the same suite, while the hall Automatic Intercommunicating Telephone serves not only to communicate between the rooms of the same suite, but to reach all the other locations mentioned in prior description; for instance, operate the Door Opener from the phone, receive communication from the vestibule, call the laundry, janitor, maid, and to intercommunicate between the different suites of the building.

No. 401 Telephone, for Suite, Maid or Janitor Use.

NO. 800. "BI-UNE" AUTOMATIC INTERCOMMUNICATING WALL TELEPHONE.

Common Return Wiring.

Zacehow	17783	8 button "Bi-une" Automatic.....	14.00
Zacehox	17789	12 button "Bi-une" Automatic.....	16.00
Zacehoy	17790	16 button "Bi-une" Automatic.....	18.00
Zacehoz	17791	20 button "Bi-une" Automatic.....	20.00

For Flush and Desk Types see pages 2 and 3.

NO. 900. "EVERSURE" AUTOMATIC INTERCOMMUNICATING WALL TELEPHONE.

Zacehuc	17794	8 button Eversure Automatic.....	20.00
Zacehud	17795	12 button Eversure Automatic.....	24.00
Zacehuf	17796	16 button Eversure Automatic.....	28.00
Zacehug	17797	20 button Eversure Automatic.....	32.00

For Flush and Desk Types see pages 6, 8 and 9.

TELEPHONES.

"UTILAPHONE" APARTMENT SYSTEM.

JANITOR'S TELEPHONE EQUIPMENT.

No. 351, Telephone for Janitor Use.

With No. 1 Common Talking System. Where this system is to be installed the janitor's instrument may be the No. 201 or any other Single Point Telephone. This furnishes the least expensive equipment. It is, however, impossible with any of these styles for the janitor to call the suite. This objection is overcome by the installation of the No. 351 cabinet, or No. 421 flush metal telephone. In the use of either of these telephones there is, however, the objection that if the janitor is absent when the call is made, the call must be repeated until he is found present. This can be overcome by the addition of an Annuciator or Annunciphone in which the drops of the calling suite remain indicating until his return. He then signals the suite by depressing the proper calling button.

With the No. 2 Non-Interfering System. In this system, in order to prevent interference, a non-interfering wiring system and either the No. 391 Switcharm, the No. 381 Plug or our "Bi-une" Automatic telephone must be utilized. These telephones require that the janitor make a test by closing successive circuits in order to ascertain from which suite a call has come, and as there is no indicating signal all calls are lost which occur during his absence. We therefore invariably recommend that the janitor be furnished with a means of ascertaining the location of a call during his absence, and thus save the suite the annoyance of continued calling and consequent complaints to the owner that the janitor does not answer properly. Such means consists of our "Bi-une" Automatic telephone with a Lilliputian Annunciator drop arranged at the side of each button, or an Annunciphone, which is a combined Annunciator and telephone switchboard, described on other pages. The first arrangement does away with the use of a cord. See next page for illustrations of the two latter types.

Intercommunication between suites can be effected through the "Bi-une" telephone arranged with the Lilliputian drop, or with the Annunciphone equipped with an intercommunicating cord pair. The latter is, however, preferable, as in an automatic telephone the janitor is obliged to hold down the depressed keys should two suites be intercommunicating when another call is received.

No. 391, Telephone for Janitor Use.

SYSTEM NO. 1. COMMON TALKING.

Code Word.	List No.	Mfr. No.		List Price. Each.
Zacemeg	18040	201	Janitor's Telephone	$8.00
Zacemeh	18041	401	Janitor's Telep., with outlet box	12.00
Zacemek	18042	351	4-button Janitor's Telephone	12.00
Zacemel	18043		Additional buttons, in sets of 4	1.00
Zacemem	18044	421	4-button, Metal, Flush	15.00
Zacemen	18045	451	4-button, Wood, Flush	15.00
Zacemep	18046		Additional buttons, in sets of 4	1.00

No. 381, Telephone for Janitor Use.

SYSTEM NO. 2. NON-INTERFERING.

Zacemer	18047	391	4-point Janitor's Telephone	12.00
Zacemes	18048		Additional buttons, in sets of 4	1.00
Zacemet	18049	381	4-jack Janitor's Telephone	13.00
Zacemev	18050		Additional buttons, in sets of 4	1.00
Zacemew	18051		8-button "Bi-une" Automatic Telephone	16.00
Zacemex	18052		Additional buttons, in sets of 4, per butt	.50
Zacemexi	24817		"Bi-une" with Lilliputian drop, extra per drop	1.20

For Annunciators, see Annunciator section.
Janitor's Annunciphone, see Annunciphone price list.
Janitor's Rotokoll Switchboard, see Rotokoll price list.

TELEPHONES.

"UTILAPHONE" APARTMENT SYSTEM.

"Bi-Une" Auto. Telephone Fitted with "Lilliputian" Signalling Drops for Janitor Use.

SWITCHBOARD SYSTEMS.

Some apartment house owners prefer to install a Central Energy Switchboard in the foyer of the hotel, all communications passing through an operator who has charge of the board. With this construction, the visitor, instead of calling from the vestibule to suites secures connection through the switchboard operator. We have switchboards of this character in operation where they are giving entire satisfaction. This system is also used to call the maid when help live in a common dormitory.

WIRING DIAGRAMS.

Owing to the many different styles of apartment house systems no wiring diagrams are included in this catalogue, but are supplied upon orders being placed for the necessary apparatus.

"SERVICE" SPECIFICATIONS.

The following gives a list of the different locations between which communication can be secured. ("Service" between "Suite and Door Opener" is merely for operating the Door Opener.) Letters indicating service desired should be stated in placing order.

Service "A"—From vestibule to suite.
Service "B"—From vestibule to janitor.
Service "D"—From suite to door opener.
Service "E"—From suite to janitor.
Service "F"—From suite to maid.
Service "G"—From suite to laundry.
Service "H"—From suite to other suites.
Service "I"—Between rooms of same suite.
Service "J"—From maid to suite.
Service "K"—From maid to janitor.
Service "L"—From maid to laundry.
Service "M"—From maid to back door.
Service "P"—From janitor to suite.
Service "Q"—From janitor to laundry.
Service "R"—From janitor to maid.
Service "S"—From janitor to door opener.
Service "T"—From janitor to back door.
Service "V"—From laundry to maid.
Service "W"—From laundry to suite.
Service "X"—From laundry to janitor.
Service "Y"—From foyer to all stations.
Service "Z"—From tradesmen to suite telephone.
Service "N"—From tradesmen to maid telephone.

"Rotokoll" C. E. Switchboard for Janitor Use in Large Installations.

HOW TO ORDER.

Great care should be used in ordering apparatus for the "Utilaphone" Apartment House Telephone installation. The contractor should carefully ascertain the requirements of the owner by going carefully over the question of the system which is desired, the type of telephone, the different stations with which it is desired to communicate, the style and finish of telephones, and secure blanks from us in which information on all points is called to the contractor's attention. Blanks are in duplicate, one to be retained by the contractor.

The carpenter or marble cutter, depending upon whether the vestibule equipment is to be placed on a wood, marble or tile trim, should be supplied with our blue prints, giving instructions for cutting the necessary opening for the telephone and letter boxes. Note that under certain conditions, such as a small vestibule, the telephone and letter boxes are sometimes placed opposite sides of the entrance.

"Annunciphone" Switchboard for Janitor.

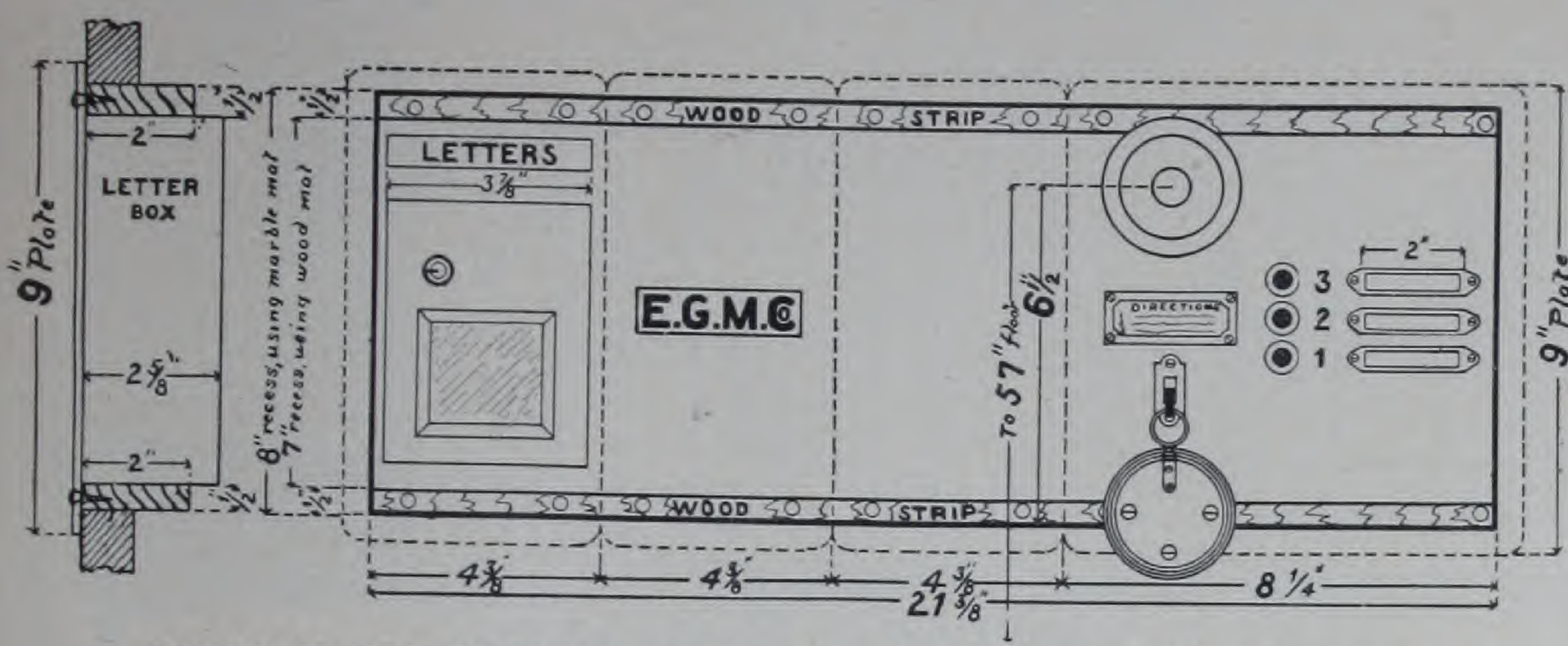


DIAGRAM FOR OPENING, WITH MARBLE TILE OR WOOD TRIM.

The heavy black lines indicate opening for three of our special Letter Boxes and a "Utilaphone" Vestibule telephone when mounted on marble or tile trim. If on wood trim, the wood strips shown are discarded and the opening reduced 1 inch in height, in other words, to 7 inches. Dotted lines indicate size of telephone plate and Letter Box. Care should be used in locating height of opening. Note distance of transmitter from bottom of plate on different styles. Center of transmitter should be 57 inches from the floor.

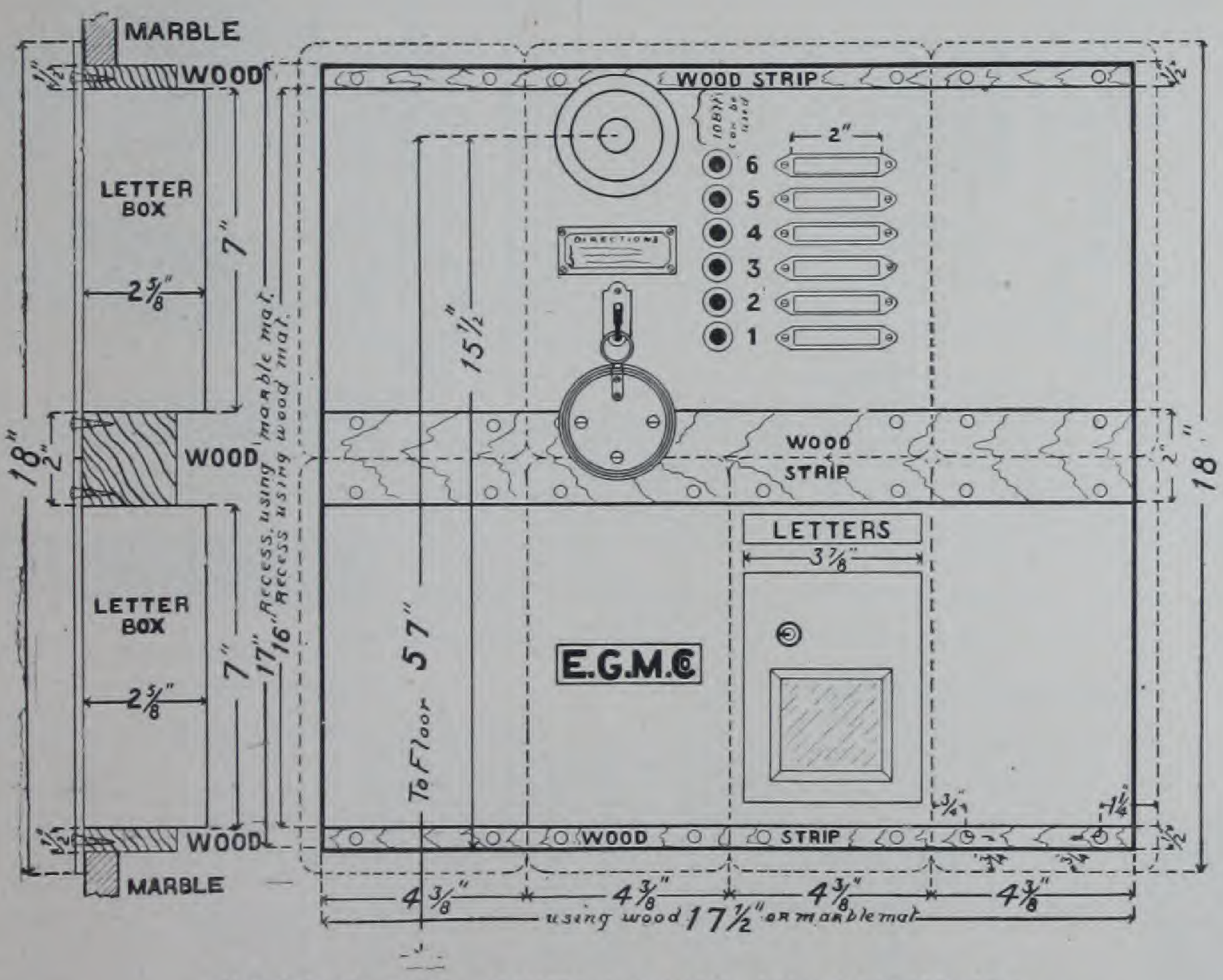
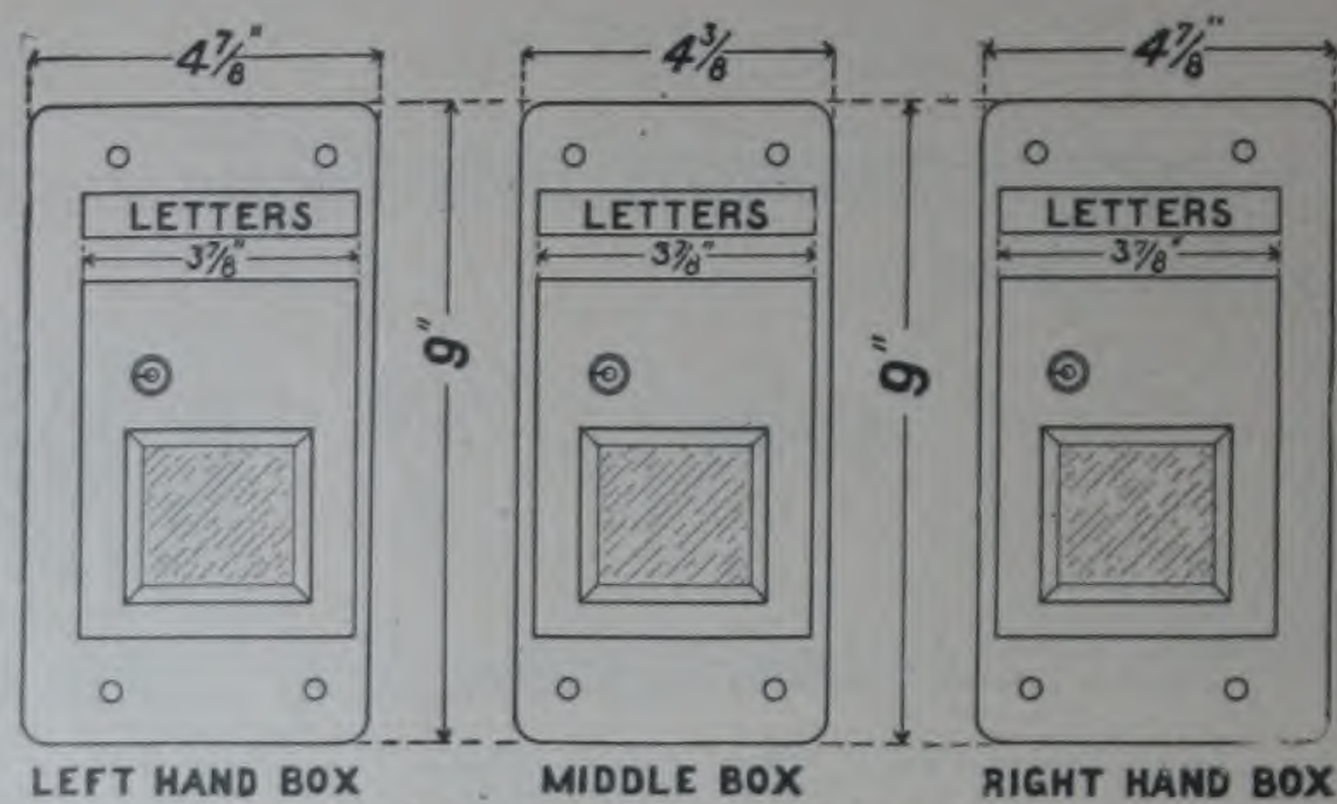


DIAGRAM FOR DOUBLE BANK ARRANGEMENT.

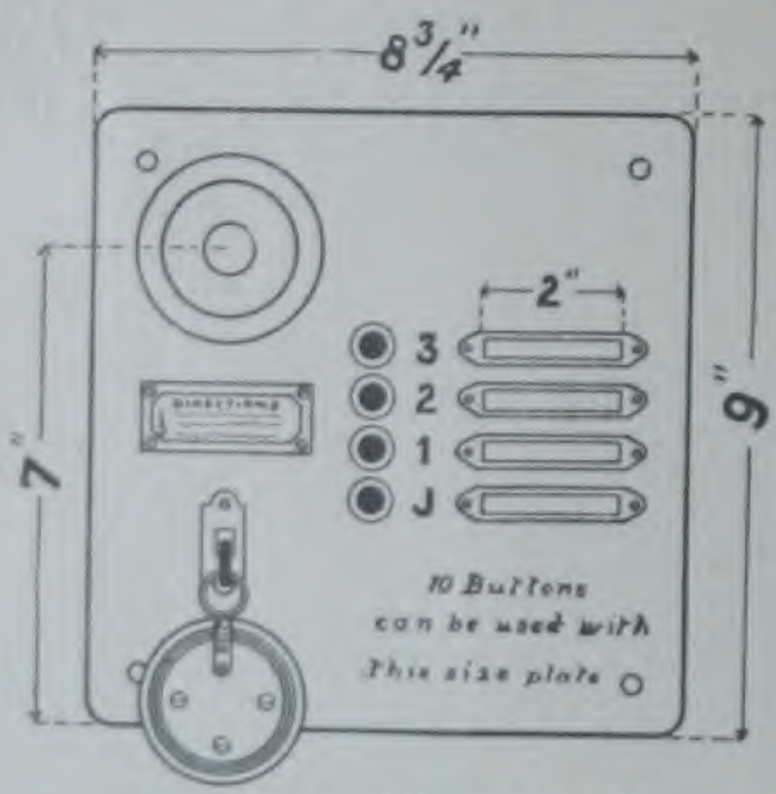
This cut shows combination of 6 of our special Letter Boxes and a 6 button "Utilaphone" Vestibule Telephone mounted on marble or tile trim. Note increased width of wood center strip, which should be painted white. Using wood trim, two openings should be cut and the separating strip left exactly 2 inches wide.

Letter Boxes can be placed either side of this combination. Every two boxes (arranged vertically) would add 4⅜ inches to the width of opening. They also may be placed below (above would be too high). Opening can be figured from diagram.

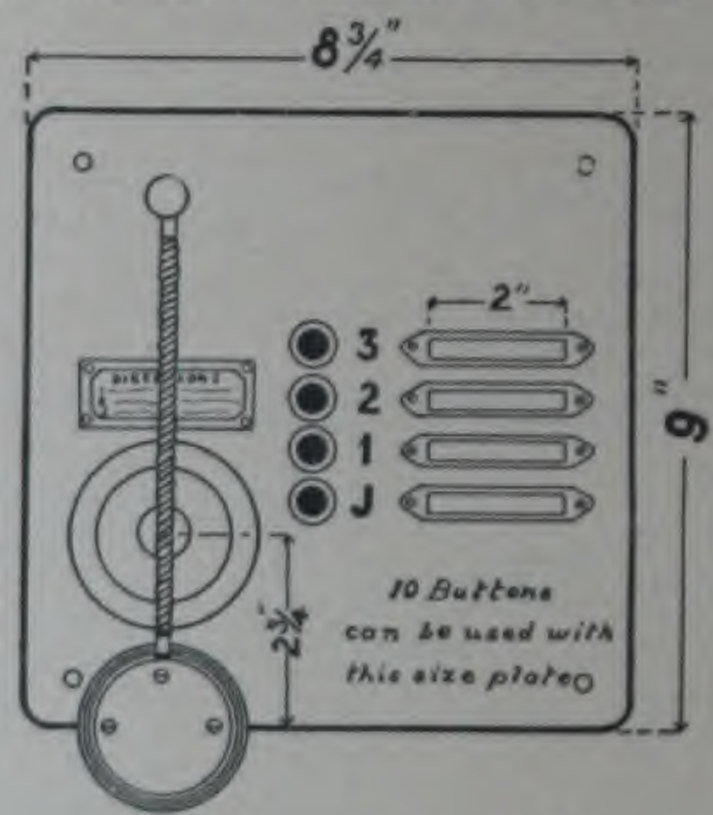


DIMENSIONS OF LETTER BOXES.

Diagram shows the three different styles of "Utilaphone" Letter Boxes with wide flange top and bottom on all and on one side of the right and left hand box. Width of opening for either style is the same, 4⅜ inches. Height of opening, 8 inches for marble or tile, and 7 inches for wood trim.



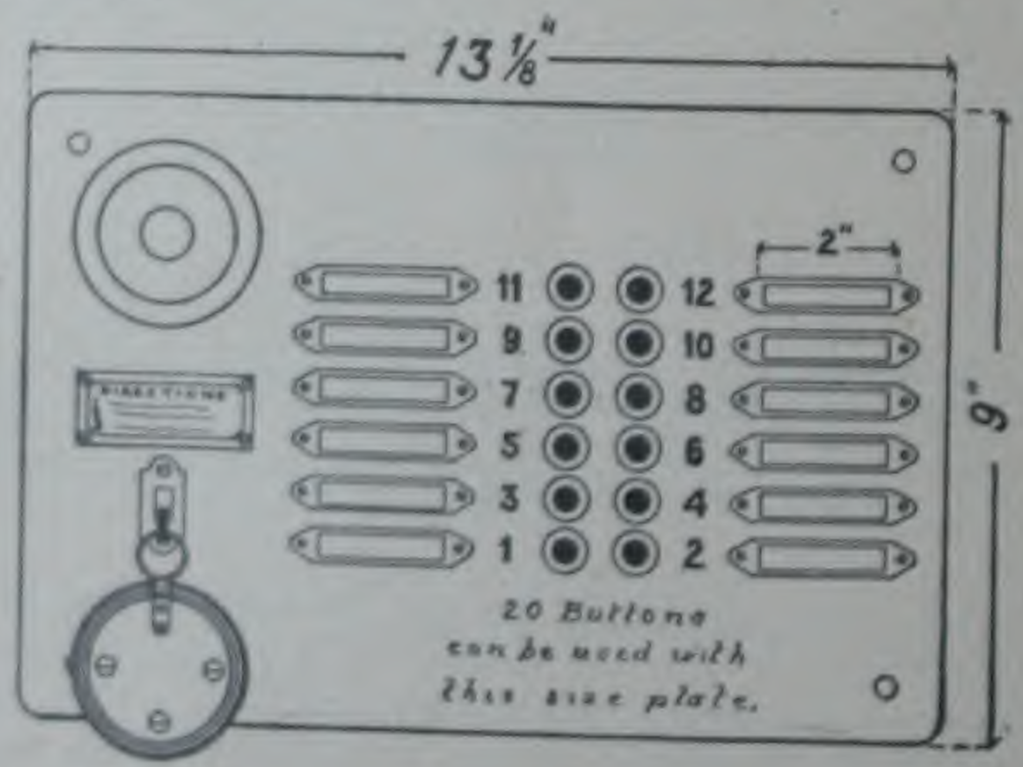
Type 1 "Utilaphone."



Type 3 "Utilaphone."

"Utilaphone" Vestibule Telephones are made with a single row of buttons up to 10. Width of opening should be 7¾ inches when telephone is installed separate from letter boxes, but 8¼ inches when letter boxes are placed on one side only, and 8¾ inches when on both sides. Height of opening is 7 inches on wood trim and 8 inches on marble trim, irrespective of letter boxes.

The different heights of transmitters from bottom of plate in type 1, 2 and 3 should be carefully considered in cutting the opening. The plate should be so placed that transmitter will be 57 inches from floor when installed.



"Utilaphone" Vestibule Telephones are made with a double row of buttons when over ten suites are to have service. Width of opening should be 12¾ inches when telephone is installed separate from letter boxes, but 12⅝ inches when letter boxes are placed on one side only, and 13¼ inches when on both sides. Height of opening is 7 inches on wood trim and 8 inches on marble trim, irrespective of letter boxes.

Over 20 buttons the height is increased ⅝ inch for each pair.

Also furnished with Long Receiver.

TELEPHONES.

NO. 15 SYSTEM.

CENTRAL STATION TELEPHONE SYSTEM.

COMMON-TALKING.

This furnishes an inexpensive telephone system where it is desired that a central station be able to call and converse with one or more outlying stations, but where the stations shall only have the privilege of signalling central. If a station desires to communicate with another station, it must make a request of Central, who presses the button of the station desired. Conversation can then take place between the stations over the common-talking wires. It must, however, be understood that in this system no other conversation can take place until the intercommunicating conversation has been terminated, and that stations can overhear any conversation by lifting the receiver. All necessary apparatus for this system is listed on this page.

The "Annunciphone" system (see index) overcomes the ability to overhear conversation, and admits of more than one pair talking at the same time, and is but slightly more expensive.

CENTRAL STATION TELEPHONE.

Code Word.	List No.		List Price, Each.
Zabokap	**22272**	No. 351, Samson Junior, 4 button numbered, 4 named	**$12.00**
Zabokar	**22273**	Additional buttons in sets, 4 numbered or 4 named, per set	**2.00**
Zabocux	**21859**	With thick back for exposed wiring, extra	**.50**
Zabodab	**21863**	Stamping names, per letter, extra	**.03**

If preferred Desk Stand No. 136 with No. 248 or 249 Push Button can be used. (See index.)

Also furnished with Long Receiver.

No. 22274.

OUTLYING STATION TELEPHONE.

Zabokas	**22274**	No. 201, Samson Junior Telephone	**7.00**
Zabokat	**22275**	No. 401 or 411 Samson Junior Telephone	**10.00**
Zabokav	**22276**	No. 701, Samson Junior Telephone	**10.00**

Nos. 221, 250 and 231, or Desk Stands can also be used. System number should always be stated.

Zabocuv	**21857**	1 Retardation Coil is required	**3.00**
Zabocuw	**21658**	With special woods other than oak, extra	**1.00**
Zabocuy	**21860**	With Long Receiver, extra	**.50**
Zabocuz	**21861**	With Long Distance Samson Transmitter, extra	**1.00**
Zaboda	**21862**	With short Adjustable Arm, extra	**1.00**

No. 21857.

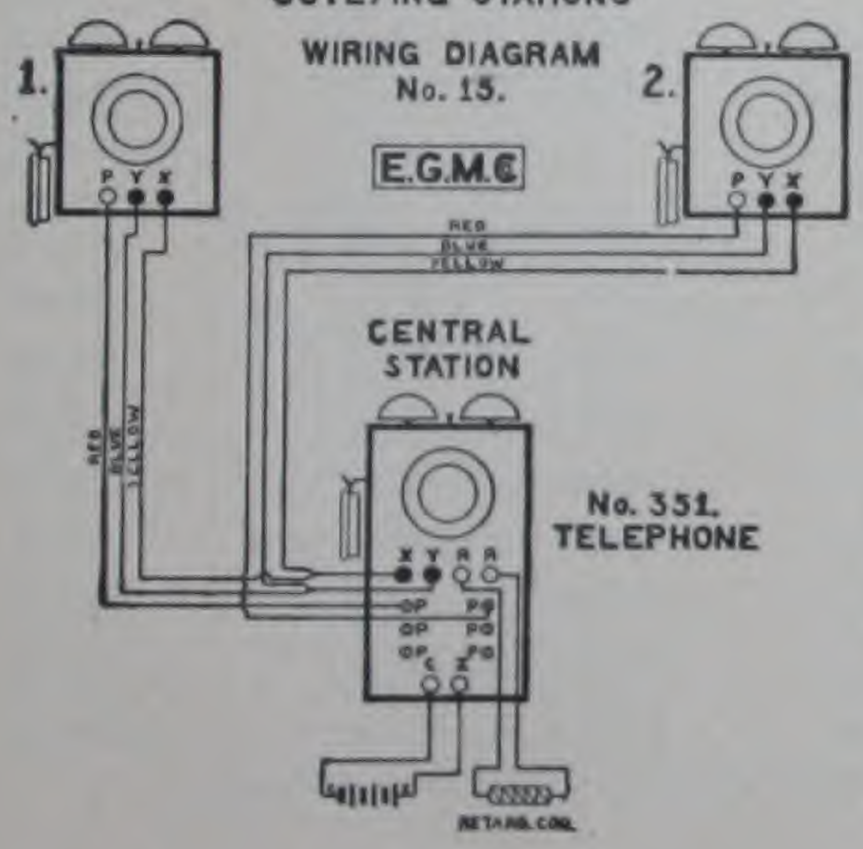
CABLE.

No. 21864.

The most rapid and economical method of wiring the No. 15 system is to install 3-conductor Samson Damp-proof for inside use, or 3-conductor Samson Water-proof cable for outside use. The Damp-proof runs 40 feet to the pound, requires no soldered taps, and is sufficiently strong not to require great care in supporting. For dry places it makes a perfect insulation. The Water-proof type can be used on any stations running through damp locations or for outside stations.

Zabodac	**21864**	3-cond. Samson Damp-proof Cable, per pound	**.80**
Zabodad	**21865**	3-cond. Samson Water-proof Cable, per foot	**.06**

No. 21865.



NO. 3 SAMSON BATTERY.

Time has conclusively proven that dry cells are not of sufficiently long life or uniform enough in output for centralized battery work. The slightest crack in the wax top allows the moisture to escape, resulting in a "dead" cell. Low amperage or voltage in one cell reduces all cells to the same output. The results from the use of the No. 3 are phenomenal. Send for test chart made on actual work.

Zabodaf 21866 No. 3 Samson Battery, per cell.... **2.00**

No. 21866.

NO. 15 WIRING DIAGRAM.

Run a 3-conductor cable from each outlying station to the Central, connect in a Retardation coil as shown, and use from 3 to 5 cells of battery, depending upon the distance.

CAUTION.—Do not cut out this diagram. Large ones are mailed on application and sent with every system.

"ANNUNCIPHONES."

Equipped with Samson Junior Single Contact Jacks.

No. 21071.
"Avonial" Style.

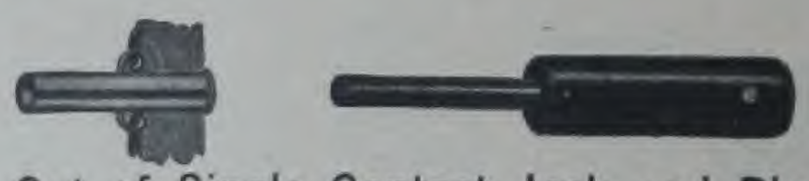
This instrument is a telephone switchboard with Annunciator drop signals. When equipped with Single Contact Jacks, as are the instruments listed on this page, it supplies a switchboard at the same price as a Return-call Annunciator, except the cost of Operator's Set and intercommunicating cord pairs, which are extra. We have placed many of these instruments originally operated as Return-call Annunciators in hotels, where later the rooms, sometimes few at a time, were fitted with telephones by simply disconnecting the push button and connecting up a No. 210 telephone (without bell mechanism) in its place, the old bell being used for signalling. Some distinguishing mark can easily be placed over the jacks to indicate the rooms which are fitted with telephones.

No. 21088.
"Devonial" Style.

Annunciphones are applicable for installation in factories, schools, hotels, etc. Many hundreds have been installed ranging in size from a small 6-drop to instruments equipped with over 200 drops. Intercommunicating cord pairs are not fitted with supervisory signals in the single contact jack style.

We strongly recommend No. 5 wiring diagram (see index), using 3-Conductor Samson Cable, which is economical and rapid to wire. (Ask for samples.)

See second succeeding page for Price List on Operator's Sets, cord pair equipments, etc.



Cut of Single Contact Jack and Plug.

"AVONIAL" STYLE.

Code Word.	List No.		List Price. Each.
Zabivig	21069	6-drop.....	$18.00
Zabivih	21070	10-drop.....	22.50
Zabivik	21071	16-drop.....	31.25
Zabivil	21072	20-drop.....	40.00
Zabivim	21073	25-drop.....	47.50
Zabivin	21074	30-drop.....	54.50
Zabivip	21075	36-drop.....	62.50
Zabivir	21076	42-drop.....	68.00
Zabivis	21077	49-drop.....	76.00
Zabivit	21078	56-drop.....	86.00
Zabiviv	21079	64-drop.....	96.00
Zabiviw	21080	81-drop.....	120.00

"BARONIAL" STYLE.

Zabivog	21089	24-drop.....	58.00
Zabivoh	21090	28-drop.....	64.00
Zabivok	21091	40-drop.....	82.00
Zabivol	21092	54-drop.....	110.00
Zabivom	21093	70-drop.....	140.00
Zabivon	21094	88-drop.....	166.00
Zabivop	21095	96-drop.....	176.00
Zabivor	21096	104-drop.....	188.00

"DEVONIAL" STYLE.

Code Word.	List No.		List Price. Each.
Zabivix	21081	24-drop.....	$54.00
Zabiviy	21082	28-drop.....	60.00
Zabiviz	21083	40-drop.....	70.00
Zabivo	21084	54-drop.....	90.00
Zabivob	21085	70-drop.....	116.00
Zabivoc	21086	88-drop.....	146.00
Zabivod	21087	96-drop.....	156.00
Zabivof	21088	104-drop.....	166.00

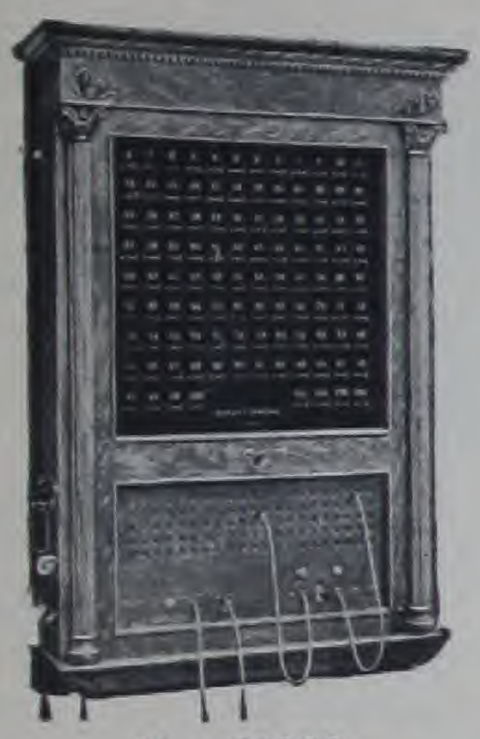
"COLONIAL" STYLE.

Zabivos	21097	24-drop.....	68.00
Zabivot	21098	28-drop.....	76.00
Zabivov	21099	40-drop.....	96.00
Zabivow	21100	54-drop.....	124.00
Zabivox	21101	70-drop.....	152.00
Zabivoy	21102	88-drop.....	184.00
Zabivoz	21103	96-drop.....	192.00
Zabivu	21104	104-drop.....	208.00

Larger sizes on application. Intervening sizes at proportionate prices.

"ANNUNCIPHONES"—(Continued).

No. 21060.
"Baronial Style."



No. 21068.
"Colonial Style."

Equipped With Samson Full Metallic Circuit Jacks.

This style Annunciphone is furnished with full metallic circuit jack equipment and precludes the possibllity of any cross talk occurring should different rooms converse over wires closely adjacent to each other. On the cord pairs of this type, double supervisory signals are furnished. For use in connection with the local telephone exchange, for which purpose the Annunciphone has been frequently used, the metallic circuit wiring is much to be preferred.

This instrument also can be used as a Return-call Annunciator, as explained on second succeeding page.

The "Safeguard" Fire Alarm Attachment is described on second succeeding page.

We strongly recommend No. 5 wiring diagram (see index), using 3-Conductor Samson Cable, which is economical and rapid to wire. (Ask for sample.)

See succeeding page for Price List on Operator's Sets, Cord Pair Equipments, etc.

Cut of Samson Metallic Jack and Plug.

"AVONIAL" STYLE.

Code Word.	List No.		List Price. Each.
Zabivam	21033	6-drop.....	$22.80
Zabivan	21034	10-drop.....	30.50
Zabivap	21035	16-drop.....	44.05
Zabivar	21036	20-drop.....	56.00
Zabivas	21037	25-drop.....	67.50
Zabivat	21038	30-drop.....	78.50
Zabivav	21039	36-drop.....	91.30
Zabivaw	21040	42-drop.....	101.60
Zabivax	21041	49-drop.....	115.20
Zabivay	21042	56-drop.....	130.80
Zabivaz	21043	64-drop.....	147.20
Zabive	21044	81-drop.....	184.80

"BARONIAL" STYLE.

Zabivem	21053	24-drop.....	$77.20
Zabiven	21054	28-drop.....	86.40
Zabivep	21055	40-drop.....	114.00
Zabiver	21056	54-drop.....	153.20
Zabives	21057	70-drop.....	196.00
Zabivet	21058	88-drop.....	236.40
Zabivev	21059	96-drop.....	252.80
Zabivew	21060	104-drop.....	271.20

"DEVONIAL" STYLE.

Code Word.	List No.		List Price. Each.
Zabiveb	21045	24-drop.....	$73.20
Zabivec	21046	28-drop.....	82.40
Zabived	21047	40-drop.....	102.00
Zabivef	21048	54-drop.....	133.20
Zabiveg	21049	70-drop.....	172.00
Zabiveh	21050	88-drop.....	215.40
Zabivek	21051	96-drop.....	232.80
Zabivel	21052	104-drop.....	249.20

"COLONIAL" STYLE.

Zabivex	21061	24-drop.....	$87.20
Zabivey	21062	28-drop.....	98.40
Zabivez	21063	40-drop.....	128.00
Zabivi	21064	54-drop.....	167.20
Zabivib	21065	70-drop.....	208.00
Zabivic	21066	88-drop.....	254.40
Zabivid	21067	96-drop.....	268.80
Zabivif	21068	104-drop.....	291.20

Larger sizes on application. Intervening sizes at proportionate prices.

"ANNUNCIPHONE" EQUIPMENTS.

"ANNUNCIPHONE" AND PLUGBOARD SYSTEMS.

INTERCOMMUNICATING CORD PAIRS.

Code Word.	List No.		List Price, Each.
Zudup	45582	Single Circuit Samson Junior Jack Cord Pairs and Listening-in Cams	$8.00

(No Supervisory Signals furnished with the above Cord Pair.)

Zudur	45583	Full Metallic Circuit Samson Jack Cord Pairs complete with Ringing Keys, double Supervisory Signals, and Listening-in Cam	15.00

OPERATOR'S SETS.

Zudus	45584	Style "A."	Consisting of Transmitter and Receiver Hook attached to case	10.00
Zudut	45585	Style "B."	Consisting of separate Wood Wall Type Telephone	7.00
Zuduv	45586	Style "C."	Consisting of desk set with 5 ft. green silk cord attached to terminals located in cabinet	16.00
Zuduw	45587	Style "D"	Consisting of Hand-Microphone complete with green silk cord, Plug, and Cut-in Jack	16.00
Zudux	45588	Style "E."	Consisting of "Adjustaphone" with single length arm	20.00

CONNECTION TO TELEPHONE EXCHANGE.

Zuduz	45589	"Annunciphone" Central Energy Equipment, including 1,000-ohm Ringer	20.00
Zufa	45590	"Annunciphone" Magneto Equipment, including 1,000-ohm Ringer and Generator	20.00

TELEPHONE PLUGBOARDS.

Telephone Plugboards enable hotels fitted with Annunciators to secure telephone service at a very small outlay. No change in the wiring is necessary if the Annunciator is fitted with return-call buttons (either No. 2 or No. 3 wiring, see index). In this case the bell in the room is allowed to remain, but the push is replaced by a No. 210 telephone (without bell mechanism). If it is a plain Annunciator (No. 1 wiring, see index) one **common** wire is run and tapped to each room, or what is better, a **separate wire** run from the Annunciator to each room. In this style the push button is replaced by a No. 201 telephone (having vibrating bell mechanism).

The only change required in the hotel office under either of the above conditions, is to install under or close to the Annunciator, a telephone plugboard having the same number of jacks as there are rooms, and running certain wires from the Annunciator to this instrument. Only as many telephones as desired need be installed at one time. Cord pairs for intercommunicating fitted with listening cams in the single contact jack style, and with listening cams and double supervisory signals in the metallic jack style, can be supplied. We should be advised of the name of the manufacturer of the Annunciators, wiring (giving our number), its finish, width and style unless style shown is satisfactory.

EQUIPMENT.

Single Circuit Samson Junior Jacks, Answering Cord and Ringing Key.

Zufab	45591	25-jack board	$30.00	Zufah	45595	75-jack board	$60.00
Zufad	45592	50-jack board	50.00	Zufak	45596	100-jack board	80.00

EQUIPMENT.

Full Metallic Circuit Samson Jacks, Answering Cord and Ringing Key.

Zufaf	45593	25-jack board	50.00	Zufal	45597	75-jack board	120.00
Zufag	45594	50-jack board	90.00	Zufam	45598	100-jack board	160.00

Prices on Operator's Sets, Intercommunicating Cord Pairs, etc., same as above prices on "Annunciphone" Equipment.

THE "SAFEGUARD" FIRE ALARM SYSTEM.

"Safeguard" "Annunciphone."

Telephone Fitted with Thermostat.

Enlarged View of Circuit Closer and Release Plug.

"Star" Electro-Mechanical Gong.

This is an attachment to the "Annunciphone," which, as its name implies, safeguards the occupants of the hotel from loss of life and the property from fire.

OPERATION.

In case of fire which may come to the clerk's knowledge through the action of the Safeguard Thermostat (described below), or otherwise, the clerk or person in charge actuates the Fire Alarm by pulling out a pin in its face, whereupon the switch-arm commences to automatically travel over the contact points, and thus continues for twenty minutes to one-half an hour to ring every bell in the house in an intermittent manner, giving an unmistakable fire alarm signal.

In addition to the regular telephones or bells in the rooms, it is advisable to install in each hall of the hotel one of our Star Electro-Mechanical gongs, to be also operated by the removal of the pin in connection with the ringing of the bells throughout the rooms. These are regular fire alarm gongs and make a very loud, penetrating alarm, enough to arouse the soundest sleeper. These can be equipped with a special device which will cause the gong to continue to strike should the wire be broken or burnt off, provided one electrical impulse had reached the gong.

We have a special gong which enables the clerk to test the gongs at regular intervals and stop the gong after making a few strokes. This device overcomes the objection found in all other continuous ringing gongs, in that they cannot be stopped after starting except by placing a bellboy at each gong, whose duty it was to pull a chain to stop it after the gong had rung a few strokes.

THE "SAFEGUARD" THERMOSTAT.

The Safeguard Thermostat provides a certain means of notifying the clerk of a fire in any of the rooms. These thermostats are really a metallic thermometer, arranged to close an electric circuit and ring a special bell placed where the clerk is located.

DESCRIPTION.

The Safeguard Fire Alarm is a handsomely finished addition to the "Annunciphone." It is covered with glass and is thus continually in sight of the clerks or the people in charge, so that it is constantly in their mind, and when the danger from fire arises they will instinctively know what to do. Stationery can be printed stating that the house is protected by the "Safeguard Fire Alarm System," and a card sign so stating above the instrument. It makes good advertising.

MODERATE COST.

When the Star Electro-Mechanical gongs are installed, a simple circuit must be added from the "Annunciphone" to each gong; otherwise the installation of the Fire Alarm does not cost anything extra for wiring, as it operates on the same wires which are used throughout the house for the Annunciphone telephone system, or return-call Annunciator, and the only cost for the Fire Alarm is the original addition to cost of the Annunciphone itself, and a few additional batteries needed to operate it.

Specifications drawn and prices quoted on request.

TELEPHONE ACCESSORIES.

"ANNUNCIPHONE" ACCESSORIES.

No. 201.
Also furnished with Long Receiver.

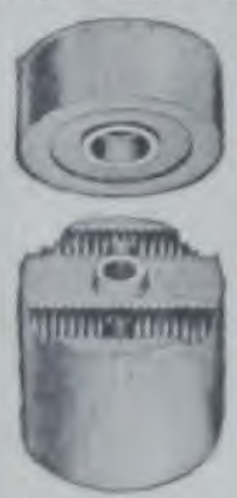
TELEPHONES.

Any of the telephones listed on Pages D, E and F are adaptable for use in connection with an Annunciphone, except the "Stayrite," which is wired for "private line" only. Nos. 201, 701, 711 and 751 are best adapted for factory use; these with the No. 401 flush for hotel use; for school use, the Nos. 201, 231, 250, 401 and 701. The wiring of the 'phones are for either No. 2, 3 or 5 diagrams; (or the No. 6 if the "Safeguard" Automatic Fire Alarm System is used), as shown on the opposite page. Stock finish of 'phones is golden oak. Special finishes to order.

No. 3 Samson Battery.

NO. 3 SAMSON BATTERY.

This cell is best adapted for Annunciphone telephone service, as it is of long life and uniform output, thereby maintaining even tone in the transmitters. Dry cells should not be used, as they are not uniform in output and are often found exhausted, owing to a slight crack in the wax, allowing the moisture to escape. "Centralized battery" telephone installations, using open-circuit batteries require the best cell obtainable, which is the No. 3 Samson.



"Gripit" Wiring Knob.

THE "GRIPIT" WIRING KNOB.

For open wiring or concealed wiring where conduit is not used, we recommend the "Gripit" Wiring Knob. The advantages are that the top does not have to be brought to a certain specified position with reference to the wire when the nail is being driven, as it will bind the wire in any position. Breakage of caps from placing cap in wrong position is therefore avoided.

Junction Box.

JUNCTION BOXES.

It is advantageous to use junction boxes on all large systems, particularly in hotel installation, placing one on each floor, for the terminating cables of each floor. This method furnishes an easy method of testing in connecting up and also after the installation has been installed.

Note complete description and price list, page 55.

3 Conductor Samson Damp-Proof Cable.

3 Conductor Samson Water-Proof Cable.

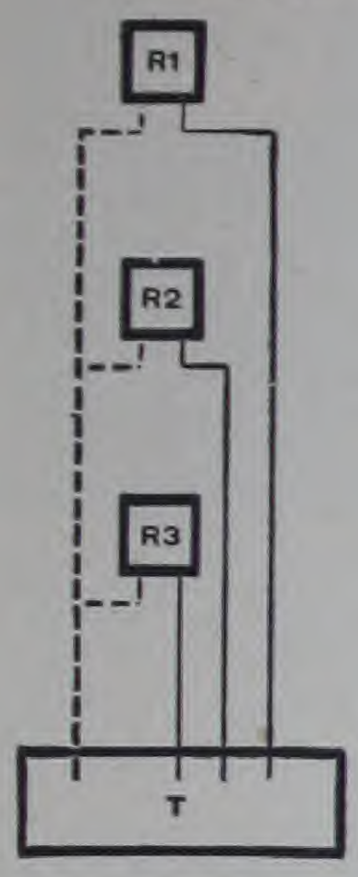
CABLES.

Experience has proven that the use of the 3-Conductor Samson Damp Proof or Water Proof cable furnishes the most economical method of wiring and gives the best service. The damp proof may be used in dry places and where moisture will never occur. The water proof is installed where moisture is present or expected, and for wiring outside of the building.

Note complete descriptions and price list on pages 60 and 61.

WIRING DIAGRAMS.

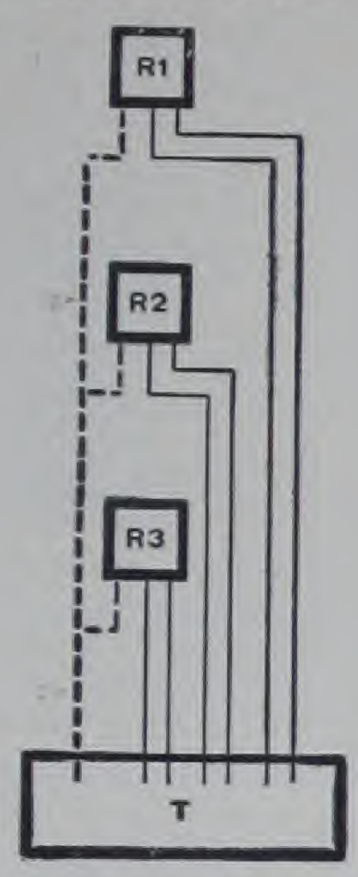
Figures "R1," "R2," "R3" represent Rooms or Stations.
Figure "T" represents Terminal Board at Annunciator.
Figure "G" represents "Star" Electro-Mechanical Hall Gong.



No. 1.

One Common Battery Wire and One Wire to each Station.

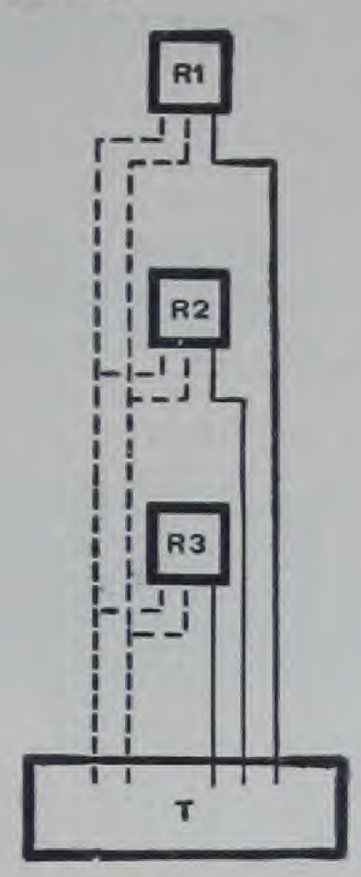
This is ordinary Annunciator wiring. To change to use telephones, run one more common wire, or one additional wire to each station.



No. 2.

One Common Battery Wire and Two Wires to each Station.

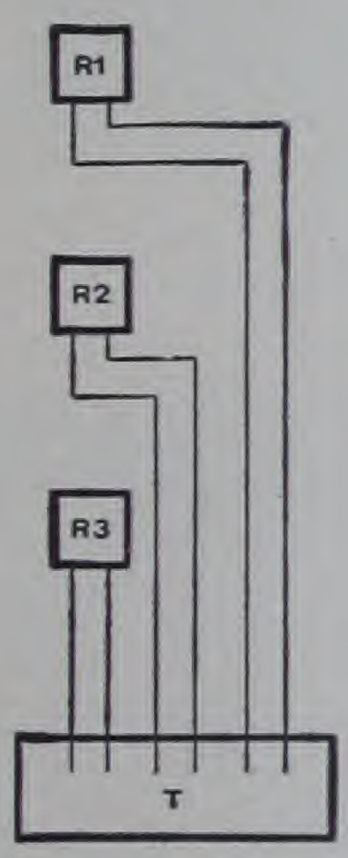
This wiring is well adapted to telephone use. Hotels so wired can be fitted with telephones without change.



No. 3.

Two Common Battery Wires and One Wire to each Station.

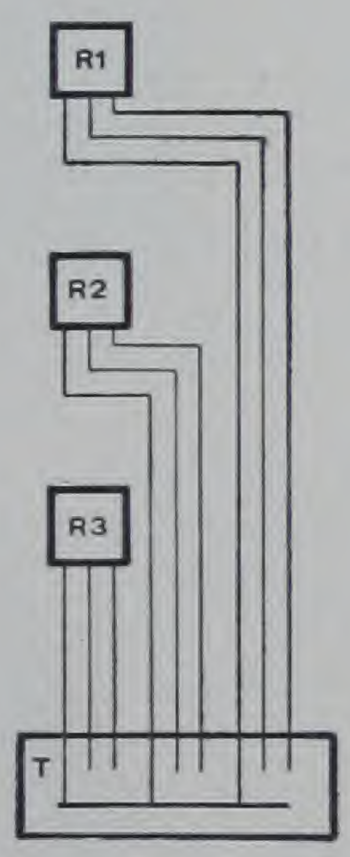
This is the so-called "3 - wire" Return - call Annunciator wiring. It does not furnish the best telephone system owing to the use of two common wires.



No. 4.

Two Wires to each Station.

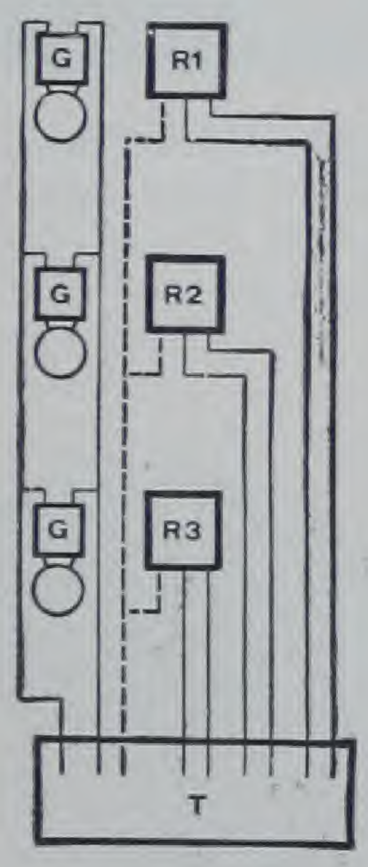
This wiring is used where the station instruments are fitted with polarized bells, the switchboard being furnished with Magneto Generator.



No. 5.

Three Wires to each Station. "Samson Cable" System.

This system is the best for wiring telephones. Three-conductor Samson Cable is rapidly wired and there is no possibility of a fault in the common wire making inoperative the whole system.



No. 6.

One Battery Wire and Two Wires to each Station. Two Gong Wires. "Safeguard" Fire Alarm System.

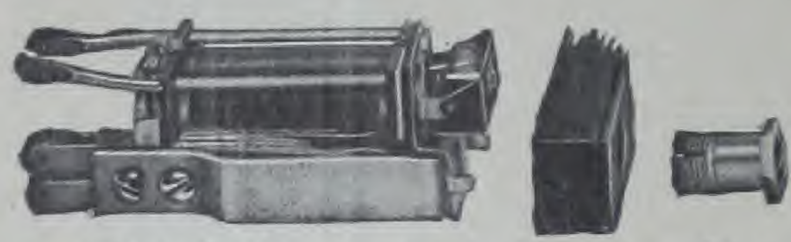
It will be noted this is the No. 2 Diagram with one extra pair of wires to which the gongs are wired in multiple.

TELEPHONES.

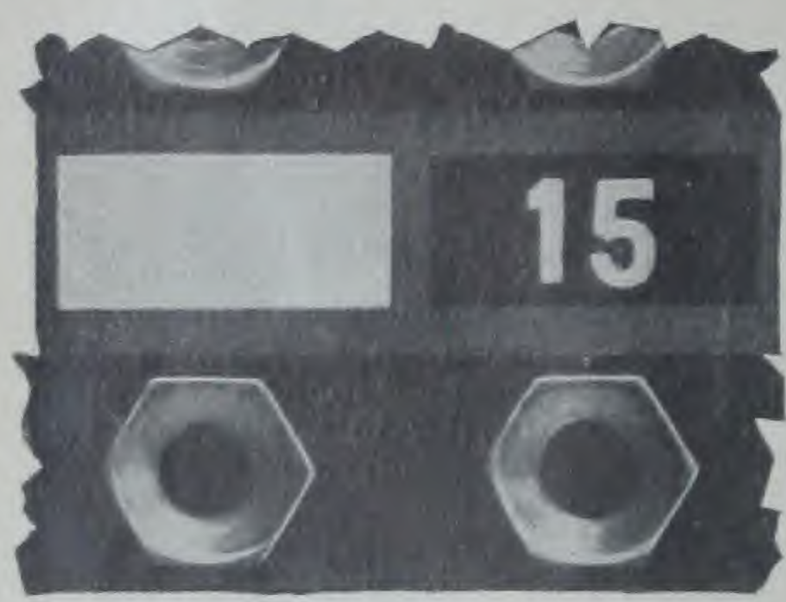
THE "ROTOKOLL" CENTRAL ENERGY SWITCHBOARD.

Switchboard Plug.

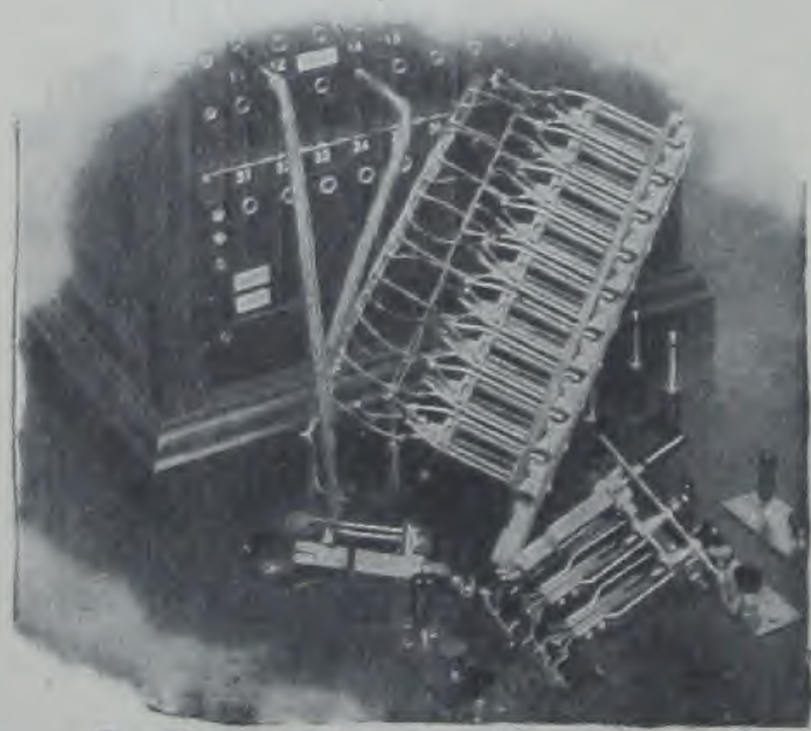
Switchboard Jack.



"Rotokoll" Central Energy Drop and Jack, showing method of removal from rubber mounting strip.



"Rotokoll" Signal Shutter. Individually the largest, collectively the smallest "central energy" drop manufactured.



..Section of board showing method of removing a bank of drops and jacks for inspection; a single drop and jack, or the listening cam and ringing keys.

"Hear that Click."

We issue a special booklet giving more complete details on this system.

"The "Rotokoll" Switchboard meets the requirements of telephone installations for private use where intercommunicating systems are unadaptable, either by reason of a desire to save time in calling stations; to secure absolute secrecy; or where a large number of stations are required. We furnish "Rotokolls" for as small a number of stations as 15, and as large as is necessary. It is always well to anticipate an increased number of stations, which can be provided for by ordering a larger cabinet completely wired, but in which all the drops and jacks are not installed. "Rotokoll" Switchboard systems are in operation in some of the largest factories, mills, schools and apartment buildings in the country, where they are giving perfect satisfaction. (Testimonials supplied on request.)

MAGNETO AND LAMP BOARDS UNSATISFACTORY.

These switchboards were designed for municipal telephone service and are unadaptable for private exchange work. The Magneto system makes an expensive one, owing to the fact that a generator must be placed at each station. As the batteries are not centralized a variation occurs in the quality of tone of the different transmitters; while the lamp switchboard is both complicated and expensive to operate. Lamps burn out and must be replaced, while it is almost impossible for the operator to determine, when a signal does not appear, whether it is lamp or circuit trouble.

"ROTOKOLL" CABINETS.

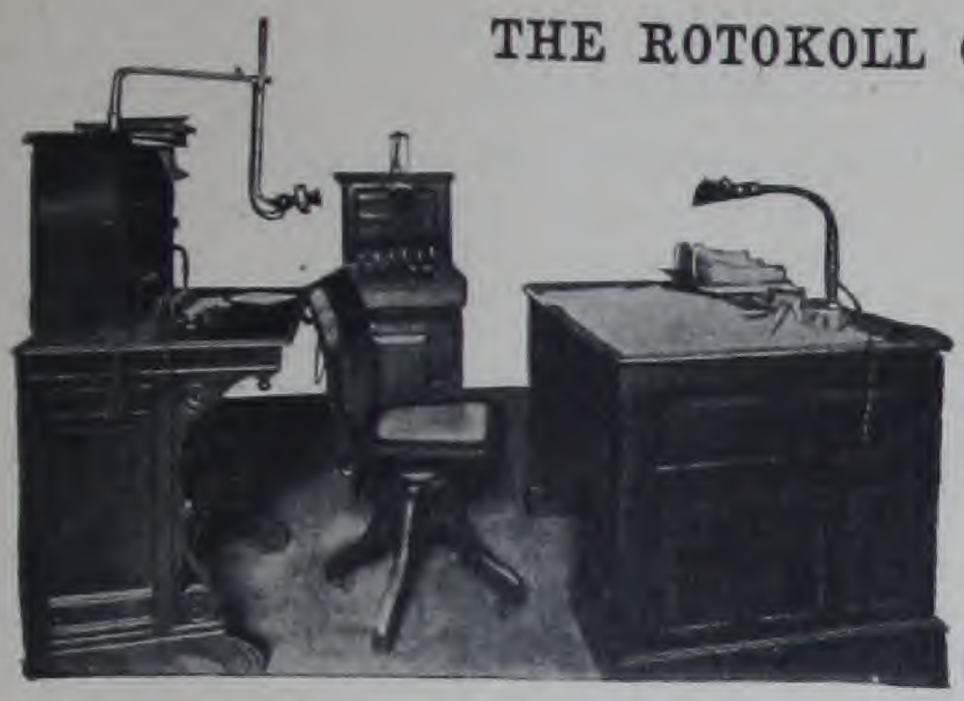
We deviate from the usual Exchange practice by furnishing a desk having drawers, which is found convenient for use in private exchange systems. The roll top style, which can be locked, prevents tampering, and the collection of dust when the board is not in use. This is particularly advantageous for school, apartment house and other installations where the location of the board is visited by strangers.

"ROTOKOLL" SWITCHBOARD DROP.

This drop is the most simple and has a more quickly dischargeable signal than any other. As shown in the illustration, it is individually large, but it occupies collectively a very small space. As an illustration, an operator can reach any jack in a 300 drop board without changing position. It gives a distinct "click" in the revolution of the shutter signal, sufficiently loud that it does not require the use of the operator's signalling bell or buzzer except when leaving the board.

TELEPHONES.

THE ROTOKOLL C. E. SWITCHBOARD—Continued.



Operation of a "Rotokoll" Switchboard, a "Bell" Switchboard and general office work at table being performed by inexpensive employe.

A 100 line "Rotokoll" Switchboard and a 10 line "Bell" Board in charge of one operator who attends to 700 calls per day.

70 line Roll Top Desk "Rotokoll." Advantage that it can be closed and locked when not in use.

"Hear that Click."

CORD PAIR EQUIPMENT.

Great care has been exercised in simplifying the operation of receiving and sending calls to the different stations. The simplicity of operation is carefully described in the special booklet, and appeals to all users who find it necessary to designate different clerks to operate the system during occasional or long absence of the regular operator.

OPERATION OF SYSTEM.

The removal of the receiver at the station signals the operator who pushes over the "listening cam" and answers by inserting any unused "plug," calling the party desired by inserting the associated "plug" in the proper jack, and pressing the ringing button. The operator can ring on either cord, which obviates reversing the plugs when "ringing" the calling station. Two supervisory signals are furnished with each cord pair. This is of great advantage over a single supervisory, as when one supervisory disappears, it immediately indicates to the operator that the other station desires to communicate.

"AFTER HOUR" OPERATION.

We can supply an equipment which will enable a station to call other stations during the absence of the operator. This is of advantage where certain stations are working at night.

SUPERINTENDENT CALL EQUIPMENT.

We can so arrange the board that the operator by depressing a special button a predetermined number of times (and known as the Superintendent's call) can ring the bells at all of the stations at the same time. Upon hearing the call the Superintendent goes to the nearest phone to answer.

FIRE ALARM SYSTEM.

We can so equip the board that a general fire alarm signal can be given by the operator pressing a special button which rings the bells of all the stations continuously.

NIGHT WATCHMAN'S EQUIPMENT.

Where it is desired that the night watchmen be enabled to communicate from any station to some certain specified station at night, for instance the engineer or head watchman, we can arrange this service.

MUNICIPAL EXCHANGE EQUIPMENT.

We can equip the board so that subscribers of either a Magneto or Central Energy Exchange can be connected to any station of the "Rotokoll" private exchange system.

"TWO-POSITION" BOARD.

We make "two-position" boards for use in installations where the calls are so frequent that one operator cannot, during certain hours, do all the work. In this arrangement, each operator receives the calls of 50 per cent of the stations, but is enabled to call all the stations from her own section. Owing to the small area of the drops when arranged collectively, one operator can manipulate the board during the absence of the other operator when calls are infrequent. Our boards are installed where one operator makes over seven hundred calls per day. The special booklet gives an illustration of our "two-position" board.

TELEPHONES.

THE ROTOKOLL C. E. SWITCHBOARD—Continued.

"Hear that Click."

"Rotokoll" C. E. Switchboard provided with Shelf when we do not supply the Desk.

DOUBLE BOARD OPERATION.

As shown in the illustration, one operator can attend our "Rotokoll" Switchboard and at the same time manipulate a leased line telephone switchboard used to receive and call subscribers of the Municipal Switchboard system.

TELEPHONES.

The No. 201, 221, 231, 250, 401, 411, 701, 711, 751, or a Desk Set, equipped with regular vibrating bells operated by open circuit battery, can be utilized with the "Rotokoll," when three wires are installed from each station to the switchboard (see wiring diagram No. 5). The No. 211, 212, equipped with polarized ringer bells operated by alternating current, or a Desk Set can also be used on the "Rotokoll" system when two wires are run from each station to the switchboard. (See wiring diagram No. 4).

POWER FOR RINGING AND TALKING.

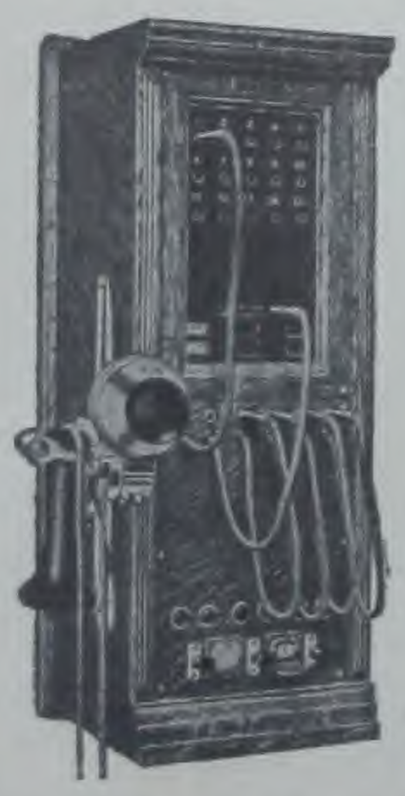
See description on the next following pages of different means of furnishing current for the ringing and talking circuits.

"ROTOKOLL" SWITCHBOARD.

Cost of complete equipment is obtained by adding together the cost of the cabinet; cost of the desired number of combined drops and jacks; cost of the desired number of cord pairs; cost of operator's set; cost of special equipments, and the desk if we supply it. If purchased without desk, we furnish a shelf upon which the cord pair equipment is mounted.

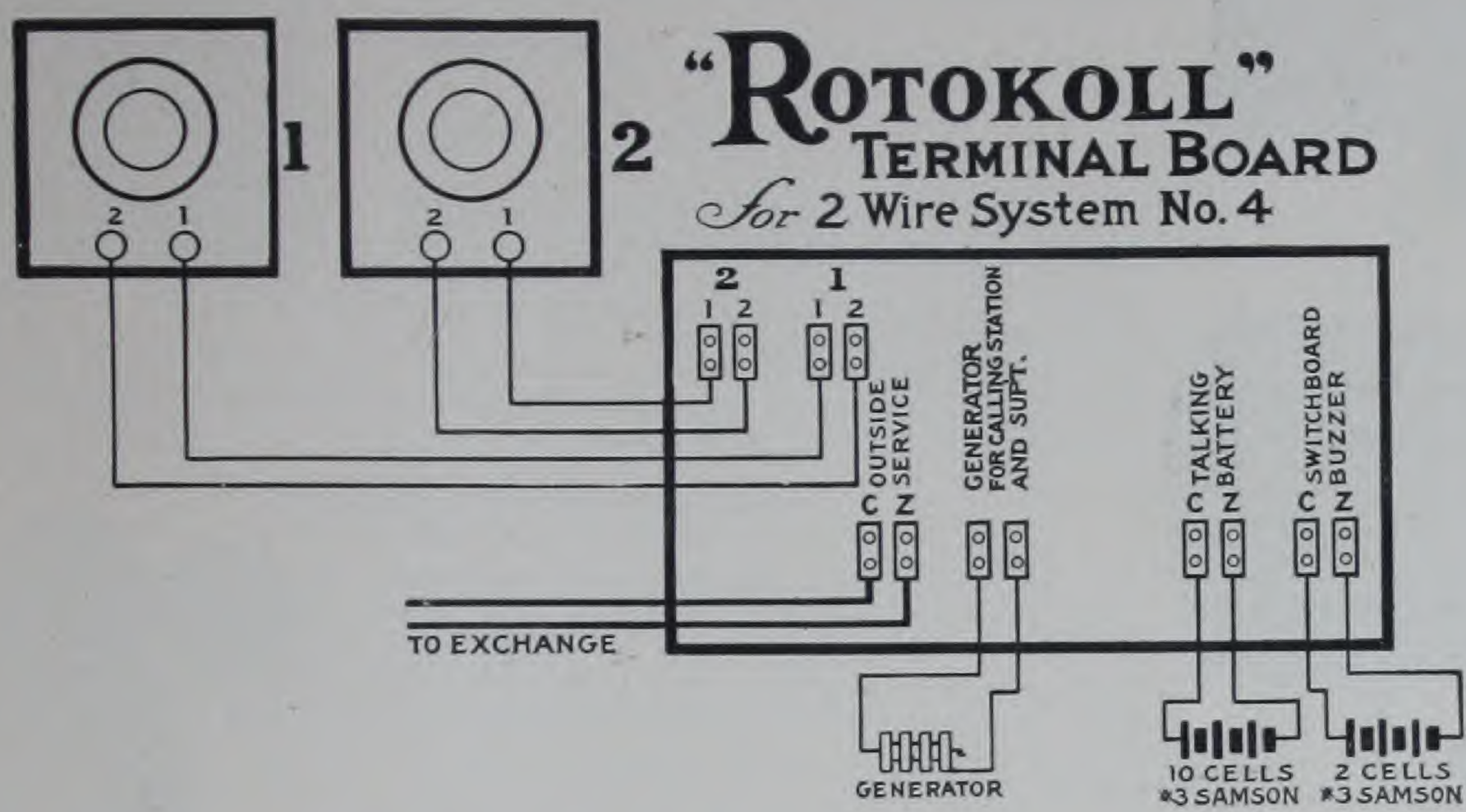
50 Line "Rotokoll." Note the relative small size of Switchboard.

Code Word.	List No.		List Price, Each.
Zacepip	18480	Cabinet for 25-line, wired for full capacity	$50.00
Zacepir	18481	Cabinet for 50-line, wired for full capacity	70.00
Zacepis	18482	Cabinet for 100-line, wired for full capacity	100.00
Zacepit	18483	Cabinet for 150-line, wired for full capacity	150.00
Zacepiv	18484	Cabinet for 200-line, wired for full capacity	200.00
Zacepiw	18485	Each drop and jack installed (in multiples of 5 or 10 only)	3.00
Zacepix	18486	Each cord pair equipment complete.	15.00
Zacepiy	18487	Switchboard desk, flat top, one bank of drawers	50.00
Zacepiz	18488	Switchboard desk, flat top, two banks of drawers	60.00
Zacepo	18489	Switchboard desk, roll top, two banks of drawers	70.00
Zacepob	18490	Style "C" Operator's set, (desk set with cord, etc.)	16.00
Zacepoc	18491	Style "D" Operator's set (hand microphone, with cord, etc.)	16.00
Zacepod	18492	Style "E" Operator's set, (Adjustiphone attached to desk)	20.00
Zacepof	18493	Style "F" Operator's set (Transmitter suspended from cord, and head band receiver)	20.00
Zacepog	18494	Style "G" Operator's set (adjustable Goose Neck and head band receiver)	20.00
Zacepoh	18495	Telephone Exchange Equipment for C. E. or Magneto Exchange	20.00
Zacepok	18496	"After Hour" ringing equipment	Special price
Zacepol	18497	Fire Alarm Equipment	Special price
Zacepom	18498	Watchman's Equipment	Special price
Zacepon	18499	"Two-position" Board Equipment	Special price
Zacepop	18500	Superintendent's Call Equipment	Special price
Zacepor	18501	Telephones are listed on other pages.	



Wall Type "Rotokoll." Fitted with Magneto Generator to Signal Municipal Exchange Operator.

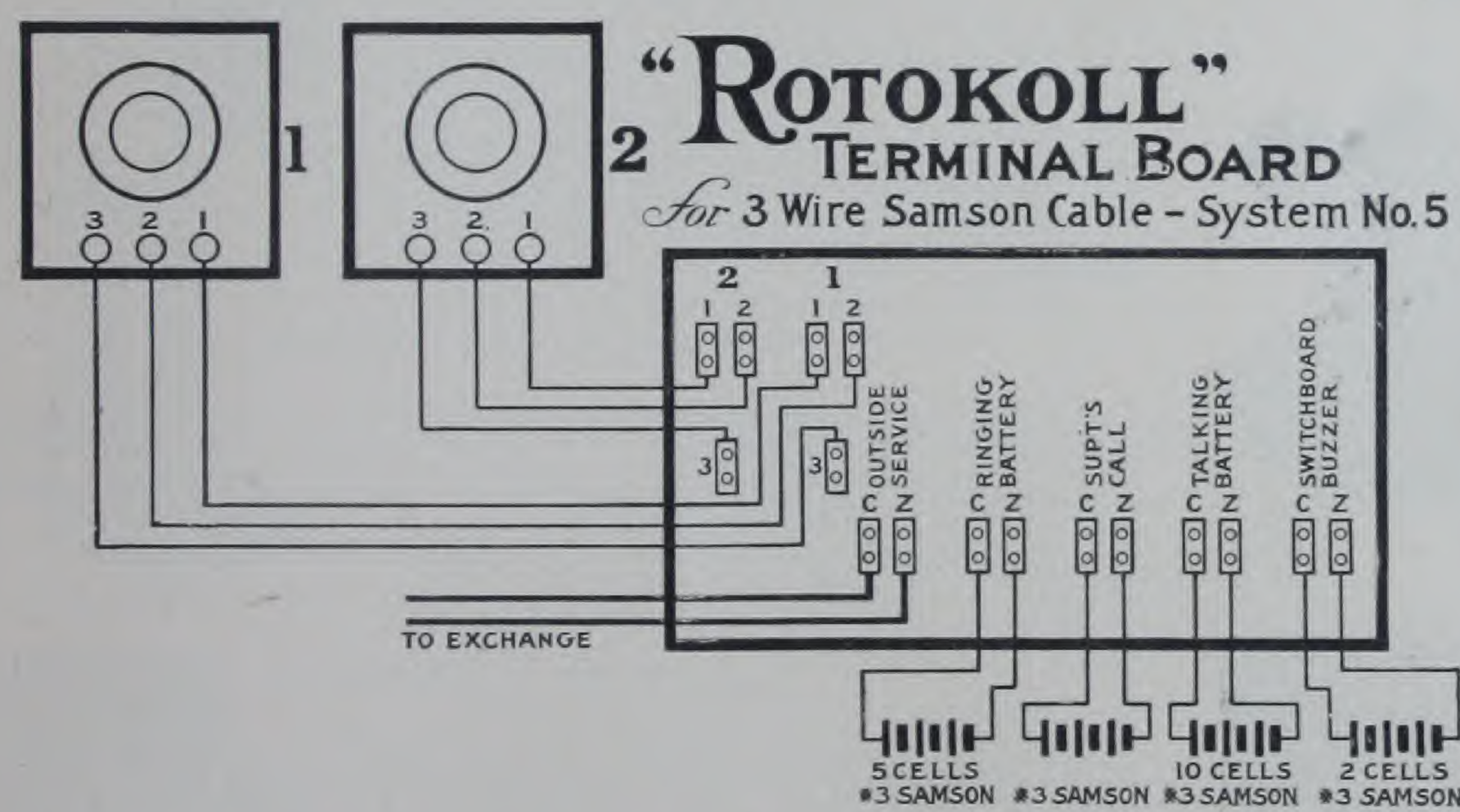
TELEPHONES.



"ROTOKOLL" TERMINAL BOARD.

SYSTEM NO. 4, USING TWISTED PAIR CABLE.

Two sets of batteries for the talking battery may be installed when depletion results from very extensive use. The use of storage batteries assures maintenance of sufficient battery without reference to the amount of use.



"ROTOKOLL" TERMINAL BOARD.

SYSTEM NO. 5, USING 3-WIRE SAMSON CABLE.

The number of batteries for the "Superintendent's call" depends upon the number of outlying stations. Two sets of batteries for ringing and talking may be installed when depletion results from very extensive use. The use of storage batteries assures maintenance of sufficient battery without reference to the amount of use.

TELEPHONES.

TELEPHONES FOR "ROTOKOLL" CENTRAL ENERGY SYSTEMS.

VIBRATING BELL TYPE.

Telephones on this page are fittedy with vibrating bells operated by open circuit batteries and work correctly on either one battery and two circuit wires (system No. 2) or three wires run from each station to the switchboard, wiring diagram No. 5. (See Samson cable, pages No. 60 and No. 61.)

The telephones on the next page are fitted with polarized ringing bells, and require two wires run from each station to the switchboard. Wiring diagram No. 4.

No. 201.

THE NO. 201 TELEPHONE.

This telephone is the least expensive of any used in connection with the Rotokoll system. It is fitted with Samson Jr. Transmitter, and is especially manufactured for inside use, with a watch case receiver. The long receivers and Samson transmitters can be furnished where preferred. See page D for description.

Code Word.	List No.		List Price, Each.
Zacizox	24601		$7.00

No. 701.

THE NO. 701 TELEPHONE.

This instrument is of better grade than the one above illustrated; is furnished with our Samson solid back, damp proof, mirror carbon long distance transmitter; long receiver of exceptional strength and longevity, roller bearing switch hook, and is provided with dust tight and bug proof escutcheons. See Page E for complete description.

Zacizoy	24602		10.00

No. 751.

THE NO. 751 TELEPHONE.

This is an instrument in which the internal mechanism is enclosed in a steel black enamel box, and all the parts of those furnished for No. 701 described above. The push button in the illustration is not used as the switchboard operator is signalled by simply removing the receiver from the hook.

See Page E for complete description.

Zacizoz	24603		10.00

No. 711.

THE NO. 711 TELEPHONE.

This instrument is particularly adapted for factory use where it is liable to be subjected to rough handling. The case is heavy and strong, provided with a shelf for taking notes, and with an iron arm adjustable transmitter.

For complete description see Page F.

Zacizu	24604		13.00

THE NO. 401 TELEPHONE.

A flush telephone makes both a practicable and handsome telephone installation for residence, school, hotel, or library installation. An iron outlet box is furnished which prevents the instrument becoming loose from placing the receiver on the switch hook, which is frequently the case where flush 'phones are screwed to the plaster. The instrument is made in both wood and metal. Stock styles being brush brass and golden oak. This type can be placed in certain desirable locations and the wood cabinet forms in others.

See Page E for complete description.

Zacizub	24605		10.00
Zacizuc	24606	Extra for iron outlet box	1.00

Desk stands with signalling apparatus also furnished when preferred.

No. 21969.
Also Furnished with Long Receiver.
Size 5¾x8 in.

TELEPHONES.

POLARIZED RINGER TELEPHONES.

The instruments on this page are either used in connection with our Rotokoll or other Central Energy Switchboards, in which the stations are signalled by alternating currents supplied by a hand-generator, power generator from shaft, or a motor generator. (See page describing the Rotokoll switchboard.)

NO. 211 POLARIZED RINGER.

This is the least expensive of the above style of telephone. It is furnished with our 500 ohm polarized ringer, which has a strong permanent magnet, more completely closing the magnetic gap than any other, and with gong adjusting screws on the inside of the cabinet, which prevents tampering. It is furnished with Sampson Junior Transmitter and two Microfarrad Condensers.

Styles in Stock.—Not in stock.

Shipped from Factory.—Prompt delivery in antique oak for No. 4 wiring diagram (see index).

Code Word.	List No.		Each. List Price.
Zabofak	21969	No. 211 polarized ringer telephone, antique oak	$13.00
Zabofal	21970	With long receiver, extra	.50
Zabofam	21971	With long distance Samson transmitter, extra	1.00

No. 21972.
Size 8x15½ in

NO. 212 POLARIZED RINGER.

This is our factory type. It has a strong, well made cabinet, is dust and bug proof by the use of sliding escutcheons on hammer rod and receiving hook; fitted with our own 500 ohm polarized ringer, having the advantages mentioned above, our roller bearing long hook with special guard to prevent false circuits, long receiver, 2 M. F. Condensers, long adjustable arm fitted with Samson Long Distance Transmitter.

Styles in Stock.—Not in stock.

Shipped from Factory.—Prompt delivery in antique oak for No. 4 wiring diagram (see index).

Zabofan	21972	No. 212 polarized ringer telephone, antique oak	18.00

No. 21973.

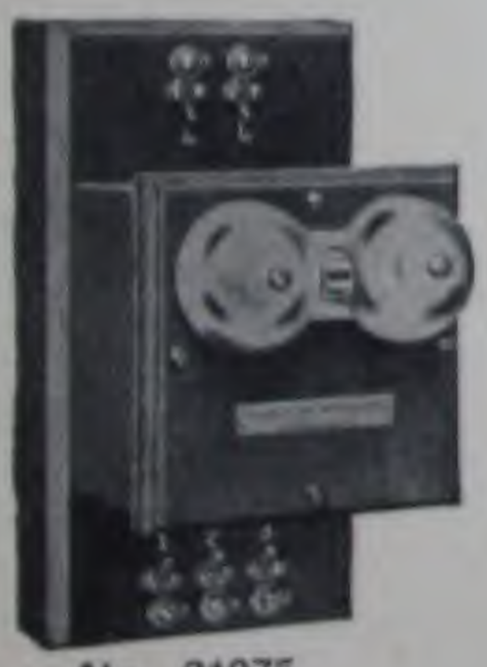
NO. 127 DESK STAND.

This Desk Stand, with its terminal block, combined with the signal bell and condenser described below, furnishes in switchboard installations using polarized ringer signal bells the necessary apparatus. In place of the desk stand, however, the swing-arm or other types shown on following pages can be used.

Styles in Stock.—Not in stock.

Shipped from Factory.—Prompt delivery in antique oak for No. 4 wiring diagram (see index).

Zabofap	21973	No. 127 desk stand, Samson junior transmitter	16.00
Zabofar	21974	With Samson long distance transmitter, extra	1.00



No. 21975.

NO. 127 SIGNAL BELL, WITH CONDENSER.

The Cabinet contains our 500 ohm Extension Bell and a 2 M. F. Condenser, in antique oak case; all terminals are plainly marked.

Zabofas	21975	No. 127 signal bell, with condenser	8.00

POWER FOR TALKING CIRCUIT "ROTOKOLL" "C. E." SWITCHBOARD SYSTEM.

No. 14129.

In "Common Battery," otherwise known as "Central Energy," Private Exchange Telephone Systems, the battery power for operating the telephone transmitters is supplied either by "open circuit" or "Storage" Batteries, depending upon the size of the system and the frequency of its use.

OPEN CIRCUIT BATTERY.

In systems of small capacity (from 25 to 50 stations), or where the number of calls does not exceed 100 or 200 per day, the No. 3 Samson Battery will give satisfactory service, owing to the uniformity and steady output in comparison with other cells of the same class or with dry batteries. Dry cells should never be used, owing to the non-uniformity of their output and the liability of the set being rendered useless by the depletion from varying causes of any one cell. An ammeter should be installed either at the switchboard or at the power board, in order that the strength of the battery may be determined at any time. Two sets of 8 cells should be installed, controlled by a double throw Jack Knife Switch, enabling the sets to be used alternately, or independently in case of an accidental short-circuit of one set.

Code Word.	List No.		
Zacadiy	**14129**	No. 3 Samson Battery.....	**$2.00**
Zacadiz	**14130**	Double Throw Jack Knife Switch.....	**.60**
Zacado	**14131**	Switchboard Ammeter (for No. 3 Samson)...	**10.00**

Storage Battery.

STORAGE BATTERY.

When the switchboard installation is of sufficient size, or where unfailing and undiminishing power is desired, the installation of a set of 10 storage batteries is the best practice. This number admits of the system being connected to the local Telephone Exchange over the company's trunk lines. The size of the cell is dependent upon the number of stations and frequency of their use. In the price list is given the type ordinarily used with the different sized boards. It is the best practice to install two sets, one set operating the system while the other is being charged. This prevents any possibility of the introduction of objectionable noises from the charging apparatus.

		Type.	Size.	Charging Rate.	Price. Complete.
Zacadob	**14132**	"C. T."	2¼ x 6¼ x 8¼	1½ Amperes.....	**4.10**
Zacadoc	**14133**	"P. T."	2½ x 6 x 12¾	3 Amperes.....	**6.40**

Power Board.

RECHARGING STORAGE BATTERIES.

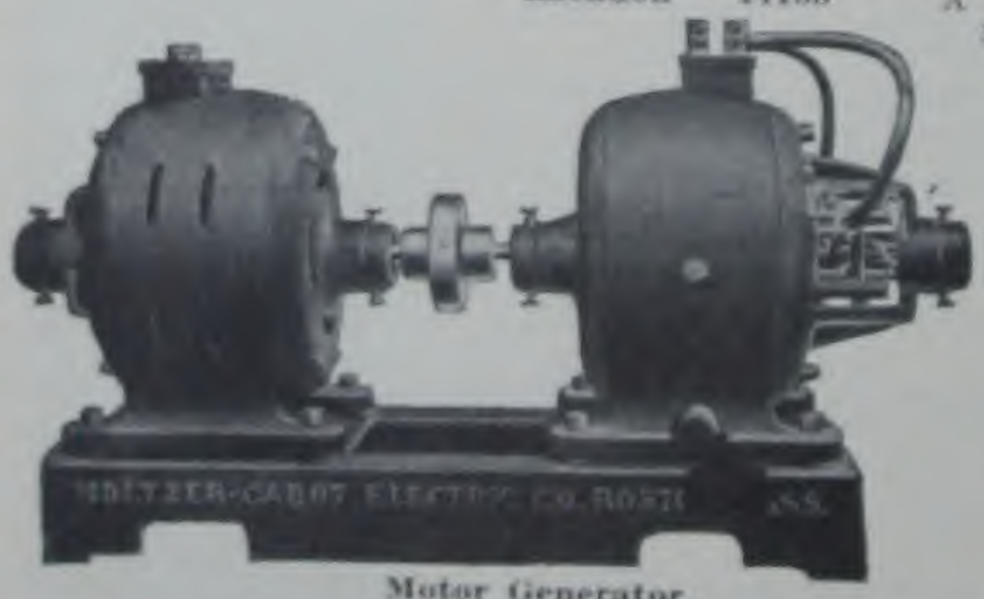
To compensate for the diminution of power of the Storage Battery, from the current taken by the transmitters, one of three methods is used to recharge them, governed by the size of the system and the amount the owner desires to expend.

METHOD NO. 1.—This is the most inexpensive method, as it is only necessary to introduce in series with a "direct" system of any voltage (alternating current cannot be used) a sufficient number of incandescent lamps to furnish the amount of current corresponding with the charging rate of the battery; for example, in type "C. T." the charging rate is 1½ amperes. This would require three 16 C. P. lamps (each passing ½ ampere), connected in parallel. The normal charging rate of type "P. T." is 3 amperes, which will require the use of 6 lamps, but in the ordinary use of the telephone system the charging rate of 1½ amperes will be found sufficient. A lower rate of charge can be secured by removing one or more lamps. These lamps and the other auxiliary apparatus used in connection therewith are arranged on power boards made of slate.

Specifications and prices of Power Boards on application.

METHOD NO. 2.—A motor generator outfit is, however, a more convenient method for recharging the storage batteries. The generator can be driven by either alternating or direct current of any voltage (500 volts is, of course, dangerous and should be avoided if possible).

		Type.	Motor.	Generator.	Output.	Price.
Zacadod	**14134**	N	E 1-7 D. C. 110 volt	E 1-7 30 volt	1½ Amp.	**121.00**
Zacadof	**14135**	O	E 1-7 D. C. 220 volt	E 1-7 30 volt	1½ Amp.	**126.00**
Zacadog	**14136**	P	1/6 H. P. C. A. 110 volt	E 1-7 30 volt	1½ Amp.	**134.00**
Zacadoh	**14137**	Q	1/6 H. P. A. C. 220 volt	E 1-7 30 volt	1½ Amp.	**137.00**
Zacadok	**14138**		A Rheostat is necessary, which should be mounted on power board.....			**10.00**


Motor Generator.

METHOD NO. 3.—The Mercury Arc Rectifier is claimed by the manufacturers to satisfactorily convert alternating current into direct, for recharging storage batteries, and to accomplish the conversion with a less expenditure of current than in using a motor generator.

Special manufacturers' pamphlets supplied on request.

POWER FOR RINGING CIRCUIT "ROTOKOLL" "C. E." SWITCHBOARD SYSTEM.

No. 12277.

In "Common Battery," or, as they are more usually known, "Central Energy" Telephone Switchboard systems, there are used two styles of ringer, namely, the Vibrating and Polarized. The former requires direct and the latter alternating current.

VIBRATING BELL TELEPHONES.

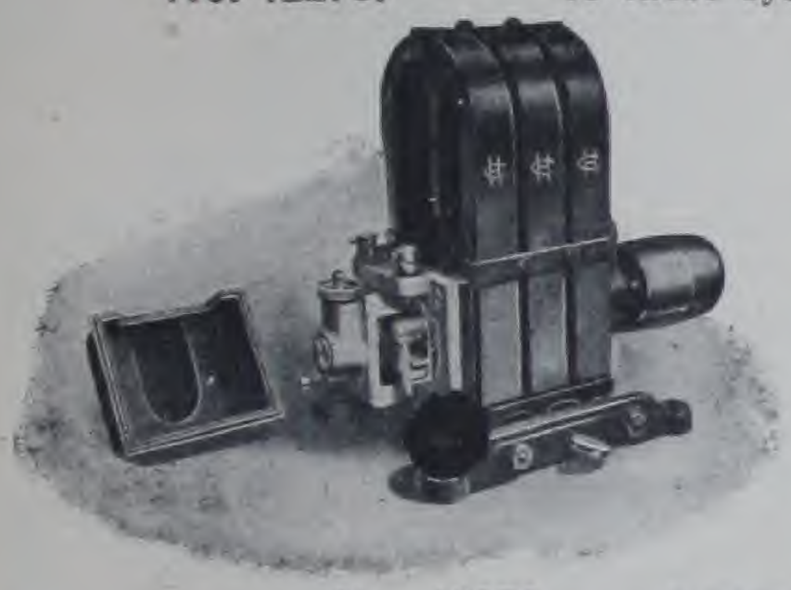
Telephones fitted with Vibrating Bells (requiring three conductors from the switchboard to the telephones) are best operated by open circuit batteries. Dry cells are sometimes used, but they are not satisfactory owing to their non-uniformity of output and the fact that the batteries become useless should one cell become depleted through evaporation of the electrolyte or poor construction. Our No. 3 Samson Batteries, which are of the fluid type, have demonstrated their ability to stand hard and continued service and to give a uniform output. We therefore advise that they always be used. It is the best practice to install two sets of 8 cells for the ringing circuit, controlled by a double throw switch, so that either set may be thrown into circuit. This same set is also used for the talking circuit.

Code Word.	List No.		List Price, Each.
Zabuloc	**12277**	No. 3 Samson Battery, size 4¾x7 inches.....	**$2.00**

No. 12278.

POLARIZED BELL TELEPHONES.

Telephones fitted with polarized bells (requiring two conductors from the switchboard to the telephones), use for ringing in small installations battery pole changers, and in the larger ones alternating current generators. Those generators may be driven by a motor or a line shafting, if such is available. We do not list dynamotors, although they are used for the purpose and lend themselves to the work very well if there is available a 110 volt direct current circuit upon which to run them. We will be glad to furnish prices. We list below the commonly accepted types for operating telephone ringers on switchboards of from 25 to 100 line capacity, the generators being of the magneto type. Bulletins giving detailed description of these systems may be had upon application.


No. 12279.

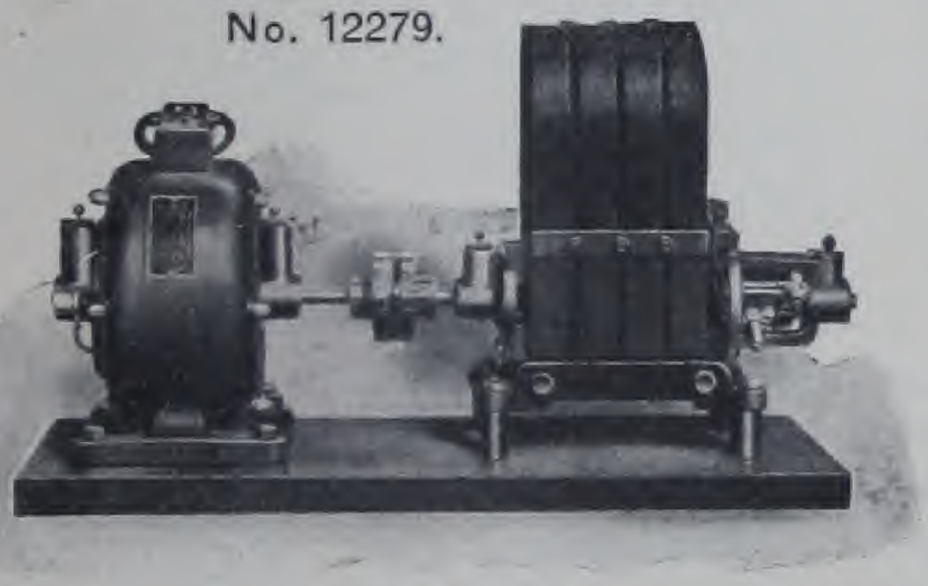
BELTED MAGNETO GENERATOR.

A simple and inexpensive method of running the generators which ring the polarized bells is to belt them to a nearby line shaft, if one is available. A hand generator should be installed at the switchboard for use in case of disability to the belted generator.

Zabulod	**12278**	Type T, 4 bar, 4 watts.....	**$15.00**
Zabulof	**12279**	Type I, 3 bar, 10 watts.....	**30.00**

GENERATOR OPERATED BY BELTS.

Note.—Type I is larger and has a greater output than Type T. The shaft is ½ inch diameter. The bearing surfaces are long and the lubricating cups are large. The brushes are in a box, which excludes dust and moisture, and all parts are reinforced.


No. 12282.

POWER MAGNETO GENERATOR.

A motor-driven outfit is, however, more practicable and convenient. The Magneto Generator which furnishes the power to operate the polarized ringer bells is coupled to a motor, as shown in the illustration, thus dispensing with the belt. The motor must correspond as to voltage and character of current (direct or alternating), with that of the plant in the building where the telephone installation is to be made, or of the city service. If alternating and direct currents are both available, the direct should always be used, as the speed of the alternating current motor is 1200 R. P. M., whereas 1000 R. P. M. is the proper speed for ringing polarized bells. If there is no other current available than the alternating, instead of coupling the motor to the generator, it is better practice to belt one instrument to the other, enabling the proper number of revolutions to be secured.

GENERATOR OPERATED BY MOTOR.

Zabulog	**12280**	Type K, ⅛ H. P., 110 volt direct current motor, coupled to 3 bar, 10 watt, 80 volt, 1000 rev. generator	**$82.50**
Zabuloh	**12281**	Type L, ⅛ H. P., 220 volt direct current motor, coupled to 3 bar, 10 watt, 80 volt, 1000 rev. generator	**87.50**
Zabulok	**12282**	Type M, ⅛ H. P., 104 volt, 60 or 133 cycle alternating current motor, coupled to 3 bar, 10 watt, 80 volt, 1200 rev. generator.....	**121.00**

No. 12283.

SANDWICH POLE CHANGER.

This instrument changes the polarity of the current delivered by 60 cells of dry battery. It is contained in an oak box 9x6x5 inches, with glass front, and weighs but four pounds. The vibrator does not require a separate cell. Our experience on our own exchange switchboard demonstrates its practicability. Current required, hardly one milliampere. Cells will last six months or more.

Zabulol	**12283**	No. 1. Pole Changer only.....	**$40.00**
Zabulom	**12284**	No. 2, above on oak stand.....	**50.00**
Zabulon	**12285**	No. 3, complete with batteries in cabinet.....	**80.00**

TELEPHONE.

THE "UNITYPE" MAGNETO SWITCHBOARD.

No. 30.
"Unitype" Switchboard.

This Switchboard embodies the idea of interchangeability to a greater extent than has hitherto been practised in Magneto Switchboards. The principle of construction has been thoroughly tested by long actual service tests, and is entirely different from any other board. The drop is one of the most prominent features of the board. There are three movable parts—the armature, the shutter and the restoring latch. The armature is hung in front of the drop coil, and the shutter, which is very light, is held in its normal position by the knife edge of the armature which engages a small projection in the bottom of the shutter, which falls forward and projects through a slot shown in the illustration. It will be noted that this is strictly a gravity drop, and does not depend upon electrical means, except in the energizing of the coil from the calling telephone. Each drop is inserted individually, and it is the work of but an instant to remove or replace the drop in position. The cabinet is well made and finished and is supplied with a brass foot rail.

No. 51.
"Unitype" Switchboard.

Code Word.	List No.		List Price, Each.
Zacedip	17507	No. 30 30-Drop Cabinet with standard equipment, 4 cord pairs and 30 jacks, including 7 feet of cable from top of cabinet (price does not include drops)	$125.00
Zacedir	17508	Series Drops installed, each	2.50
Zacedis	17509	Bridging Drops installed, each	3.50
Zacedit	17510	No. 50 50-Drop Cabinet with standard equipment, 6 cord pairs and 50 jacks, including 8 feet of cable from top of cabinet (price does not include drops)	175.00
Zacediv	17511	Series Drops installed, each	2.50
Zacediw	17512	Bridging Drops installed, each	3.50
Zacedix	17513	No. 51 100-Drop Cabinet with standard equipment, 10 cord pairs and 100 jacks, including 8 feet of cable from top of cabinet (price does not include drops)	300.00
Zacediy	17514	Series Drops installed, each	2.50
Zacediz	17515	Bridging Drops installed, each	3.50
Zacedo	17516	No. 52 200-Drop Cabinet with standard equipment, 20 cord pairs and 200 jacks, including 8 feet of cable from top of cabinet (price does not include drops)	550.00

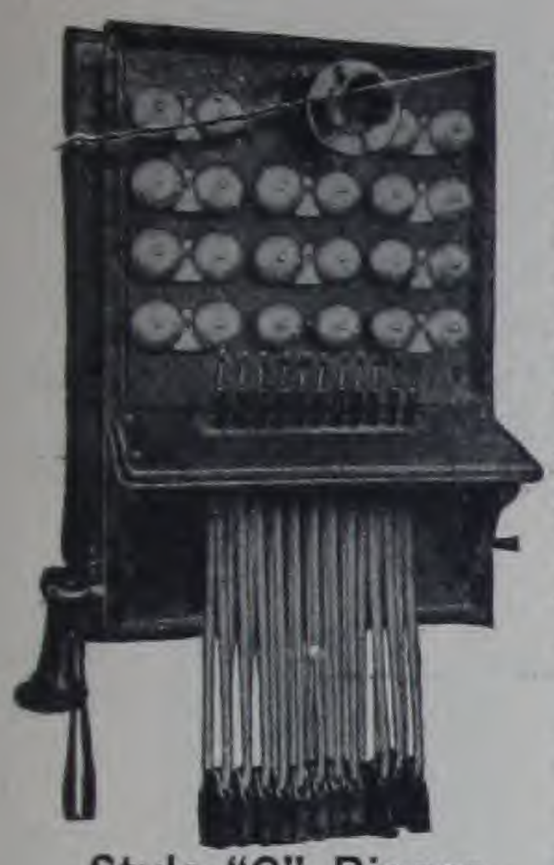
EXTRAS.

Zacedob	17517	Ring-back keys attached to boards, extra per cord circuit	2.00
Zacedoc	17518	Pilot lamp equipment consisting of 12-volt lamps with the necessary lamp caps, relay, switching keys, fuse links, etc., showing white on the line indicator and red for the clear-out drops, extra for each position	30.00
Zacedod	17519	Cord test jack, enabling the operator to detect troubles on cords, extra per cabinet	6.00
Zacedof	17520	No. 56A Repeating coil wired in the cord circuit, extra	8.00
Zacedog	17521	No. 56A Repeating coil as above, but with key for cutting coil in or out of cord circuit	12.00

No. 3 "Unitype" Magneto Drops.
No. 4 Shutter in Indicating Positions.

TELEPHONES.

STYLE "C" RINGER BOARD.



Style "C" Ringer Board.

For small junction points and farmers' lines, this instrument offers a reliable and economical "Central." Instead of using a drop each line is provided with a bell in combination with a latch indicator, which falls when the bell rings, and thus indicates which line is calling. A plug and cord is connected in multiple with each line, for it is only necessary to use one plug to connect two lines, not two plugs and cords, which is usually the case. When two lines are connected together the bell connected to one of them is left bridged across the line to act as a clearing-out signal. This is a very convenient feature not usually found in small switchboards. All "calling up" and talking is done by Central with an operator's plug. This does away with the usual "Ringing Cams," "Listening Keys," push buttons, or other devices which tend to make the circuits complicated, and which require experts to maintain in good working order. Means are provided to enable Central to "listen in" when two parties are connected.

As each line is connected to a separate bell which rings exactly the same as one of the telephone bells on the line, "Central" can have a signal and need only answer when the proper signal is rung. These boards are made in 4, 6, 8 and 10 line capacities, with 1600 ohm ringer. The 4, 6 and 8 line boards require an ordinary bridging telephone for the operator's set. The 10 line board is equipped with a complete operator's set, consisting of our "Samson" long distance solid black transmitter, bipolar receiver, platinum pointed switch hook, operator's induction coil and a 5-bar heavy current capacity generator.

Code Word.	List No.		List Price, Each.
Zacinud	22871	4 Line	$33.00
Zacinuf	22872	6 Line	46.50
Zacinug	22873	8 Line	60.00
Zacinuh	22874	10 Line	92.00

Magneto Desk Telephone.

MAGNETO DESK TELEPHONES.

We manufacture high grade desk stands made with enclosed contacts, having in each one platinum points. The removal of one screw enables the mechanism to be disassembled. The price includes 5 feet green silk flexible cord, terminal block, and induction coil, but does not include signalling apparatus, which is listed on pages 38 and 47.

Zacinuk	22875	125	Bridging Type, with Samson Jr. Transmitter	15.00
Zacinul	22876	125	Bridging Type, with Samson Transmitter	16.00
Zacinum	22877	126	Series Type, with Samson Jr. Transmitter	15.00
Zacinun	22878	126	Series Type, with Samson Transmitter	16.00
Zacinup	22879	127	Central Energy Type, with Condenser, Samson Jr. Transmitter	16.00
Zacinur	22880	127	Central Energy Type, with Condenser, Samson Transmitter	17.00

Magneto Wall Telephone.

MAGNETO WALL TELEPHONES.

Description of the method of manufacture of this class of telephone will be found on the following page. The "Kompete," a cheap series type, is listed on page 44.

		Mfr. No.	Ohm Ringer.	Bar Generator.	
		SERIES.			
Zacinus	22881	610	80	3	17.00
		BRIDGING.			
Zacinut	22882	611	1000	3	19.00
Zacinuv	22883	612	1000	4	21.00
Zacinuw	22884	613	1000	5	23.00
Zacinux	22885	614	1600	4	22.00
Zacinuy	22886	615	1600	5	24.00

Either style, with double battery box, .50 list, extra. Fitted with 2 M. F. condensers, $2.00.

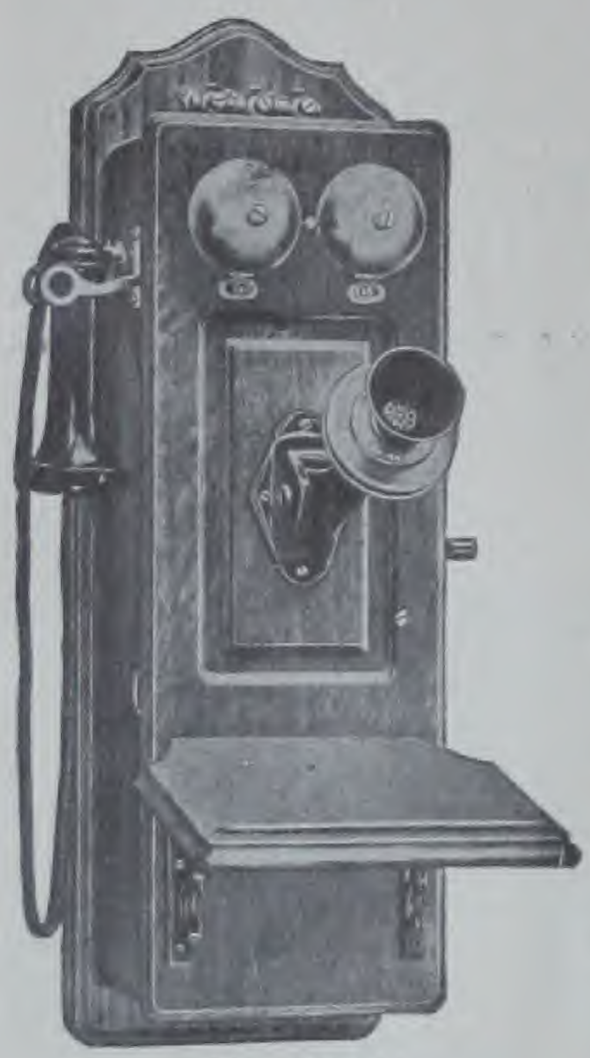
Price does not include batteries. Special prices for higher power generator. Fitted with Samson Junior Transmitter, .50 less, net. No charge for boxing.

TELEPHONES.

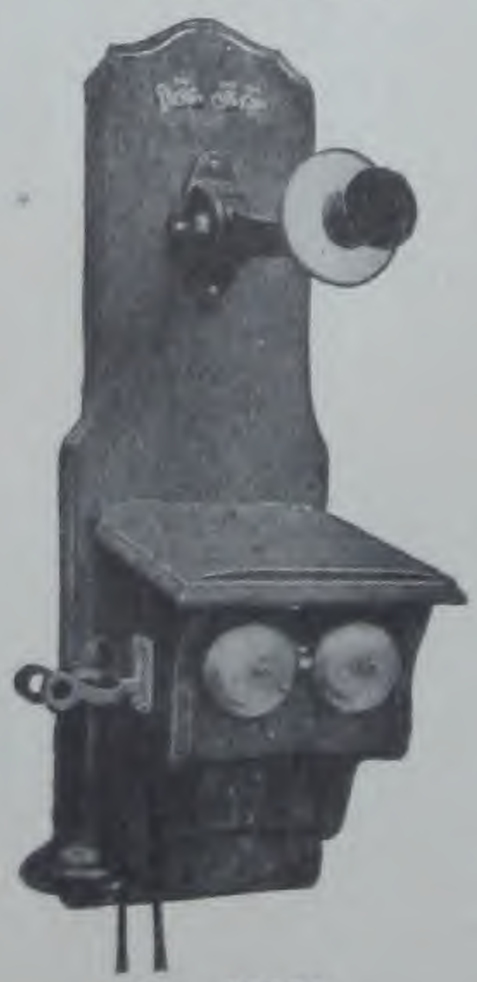
"SAMSON" MAGNETO TELEPHONES.

Our Magneto Telephones are strictly high grade. The apparatus entering into their construction includes our Samson solid back, damp-proof transmitter, with mirror polished electrodes, with both terminals insulated from the frame; a first class generator and ringer, the Samson anti-false contact hook switch, with dust tight escutcheons, strong, well made long receivers. Four bar 1000 ohm ringer bridging sets, fitted with a 2 M. F. Condenser, will ring more bells with the receivers on the hook and more with the receivers off the hook than a 5 bar 1600 ohm will ring using the old method without Condensers.

No. 22336.



No. 22343.



No. 22350.

Code Word.	List No.	Mfr. No.	Ohm Ringer.	Bar Generator.	List Price, Each.
		SERIES.			
Zabokot	22336	600	80	3	$15.00
		BRIDGING.			
Zabokov	22337	601	1000	3	17.00
Zabokow	22338	602	1000	4	19.00
Zabokox	22339	603	1000	5	21.00
Zabokoy	22340	604	1600	4	20.00
Zabokoz	22341	605	1600	5	22.00
Zaboku	22342	Fitted with 2 M. F. Condensers..			2.00

Price does not include batteries. Special prices for higher power generator. Fitted with Samson Junior Transmitter, 50c less, net. No charge for boxing.

		SERIES.			
Zabokub	22343	660	80	3	18.00
		BRIDGING.			
Zabokuc	22344	661	1000	3	20.00
Zabokud	22345	662	1000	4	22.00
Zabokuf	22346	663	1000	5	24.00
Zabokug	22347	664	1600	4	23.00
Zabokuh	22348	665	1600	5	25.00
Zabokuk	22349	Fitted with 2 M. F. Condensers..			2.00

Price does not include batteries. Special prices for higher power generator. Fitted with Samson Junior Transmitter, 50c less, net. No charge for boxing.

		SERIES.			
Zabokul	22350	680	80	3	18.00
		BRIDGING.			
Zabokum	22351	681	1000	3	20.00
Zabokun	22352	682	1000	4	22.00
Zabokup	22353	683	1000	5	24.00
Zabokur	22354	684	1600	4	23.00
Zabokus	22355	685	1600	5	25.00
Zabokut	22356	Fitted with 2 M. F. Condensers..			2.00

Price does not include batteries. Special prices for higher power generator. Fitted with Samson Junior Transmitter, 50c less, net. No charge for boxing.

"KOMPETE" MAGNETO TELEPHONE.

This instrument is furnished to meet the demand for a cheap series telephone for competitive work, made with Samson Jr. Transmitter and 80 ohm ringer and push button shunt.

Zaborue 22555 "Kompete" Telephone..... 12.50

TELEPHONE ACCESSORIES.

No. 22370.

MAGNETO BELLS.

These bells are reliable and have mechanism of superior quality. Oak cases are used which are well made and finished.

Code Word.	List No.		List Price, Each.
Zabolal	22370	80 ohm, with 3 bar Magnet Generator	$8.00
Zabolam	22371	1000 ohm, with 4 bar Magnet Generator	10.50
Zabolan	22372	1600 ohm, with 4 bar Magnet Generator	11.00
Zabolap	22373	1600 ohm, with 5 bar Magnet Generator	13.00

No. 22374.

MAGNETO TESTING BELLS.

These bells are first class in every respect and are guaranteed to ring through the resistance specified. Binding posts are made to take gauge wire up to No. 4. Boxes are of oak and average weight of instrument is 10 pounds. All corners are metal bound.

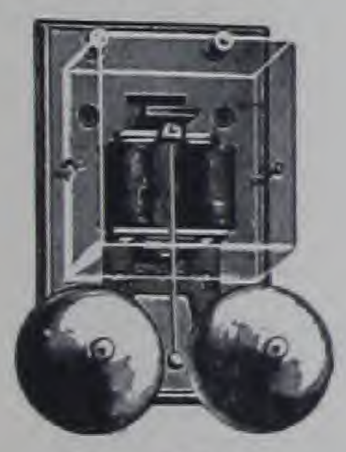
Zabolar	22374	To ring through 10,000 ohms	8.80
Zabolas	22375	To ring through 15,000 ohms	9.10
Zabolat	22376	To ring through 25,000 ohms	9.40
Zabolav	22377	To ring through 35,000 ohms	9.80
Zabolaw	22378	To ring through 40,000 ohms	10.10
Zabolax	22379	To ring through 50,000 ohms	10.50

No. 22380.

HAND GENERATORS.

MADE WITH OAK OR WALNUT BOXES.

Zabolay	22380	3 Bar Series, automatic shunt	5.40
Zabolaz	22381	4 bar Bridging, automatic cut-in-shaft	5.40
Zabole	22382	4 bar Bridging, automatic cut-in-shaft	7.20
Zaboleb	22383	5 bar Bridging, automatic cut-in-shaft	9.20



No. 22384.

EXTENSION BELLS.

Used in connection with telephones where an extra bell is wanted at a point where the regular call cannot be heard.

Zabolec	22384	80 ohms	3.40
Zaboled	22385	160 ohms	3.75
Zabolef	22386	500 ohms	4.20
Zaboleg	22387	1000 ohms	4.80
Zaboleh	22388	1600 ohms	5.25
Zabolek	22389	2400 ohms	6.50
Zabolel	22390	Condenser pattern without Induction Coil or Condenser, extra	3.75

LOUD RINGING EXTENSION BELLS.

(For Magneto Signaling.)

These bells fitted with 6 inch gongs are intended for signaling purposes where an alarm is required which will be heard over a considerable distance, or in noisy places.

WOOD BOX PATTERN.

Zabolem	22391	80 ohm, 6 inch	10.00
Zabolen	22392	160 ohm, 6 inch	10.25
Zabolep	22393	500 ohm, 6 inch	10.80
Zaboler	22394	1000 ohm, 6 inch	11.00
Zaboles	22395	1600 ohm, 6 inch	11.50
Zabolet	22396	2400 ohm, 6 inch	12.50
Zabolev	22397	2 M. F. Condenser for either of above bells	3.00
Zabolew	22398	4 M. F. Condenser for either of above bells	5.50

No. 22391.

IRON BOX WEATHERPROOF PATTERN.

Zabolex	22399		13.50
Zaboley	22400		14.00
Zabolez	22401		14.50
Zaboli	22402		15.00
Zabolib	22403		15.50
Zabolic	22404		16.00

TELEPHONE ACCESSORIES.

No. 19627.
Size 6¾x2¼x⅞ in.

CONDENSERS.

TYPE NO. 301.

This Condenser is used in connection with old bridging lines to enable the bells to be rung if receivers have been removed at any of the instruments by accident or by parties at the 'phones desiring to overhear the conversation. In the usual method of adding condensers to enable the bells to be rung under these conditions, it has been necessary to "cut-in" the condenser between the secondary connection of the induction coil and the receiver, which is a rather difficult operation after the telephones have been installed.

With the No. 301 type it is only necessary to fasten the condenser to the wall beside the telephone and then remove the ends of the receiver-cord from the telephone and attach them to the binding-posts on the condenser case, as shown in the illustration. Then fasten the cord coming from the side of the condenser case to the binding-posts on the telephone, formerly occupied by the receiver cord.

Code Word.	List No.		Price, Each.
Zacicur	19625	Lots less than 50	$2.00
Zacicus	19626	Lots 50 or more	1.80

No. 19625.
Size 6¾x2¼x⅞ in.

TYPE NO. 300.

This Condenser differs from the No. 301 only in the manner in which it is installed. In this style the wire terminals shown are connected to the binding-posts where receiver tips were previously fastened. The receiver cord is then attached to the binding-posts in the same manner as in the No. 301.

Zacicut	19627	Lots less than 50	1.70
Zacicuv	19628	Lots 50 or more	1.50

TYPE NO. 225.

With this style it becomes necessary to "cut-in" the condenser in the talking circuit between the secondary connection of the induction coil and the receiver.

Zacicuw	19629	Price, each	1.00

No. 19629.

"STANDARD" CONDENSERS.

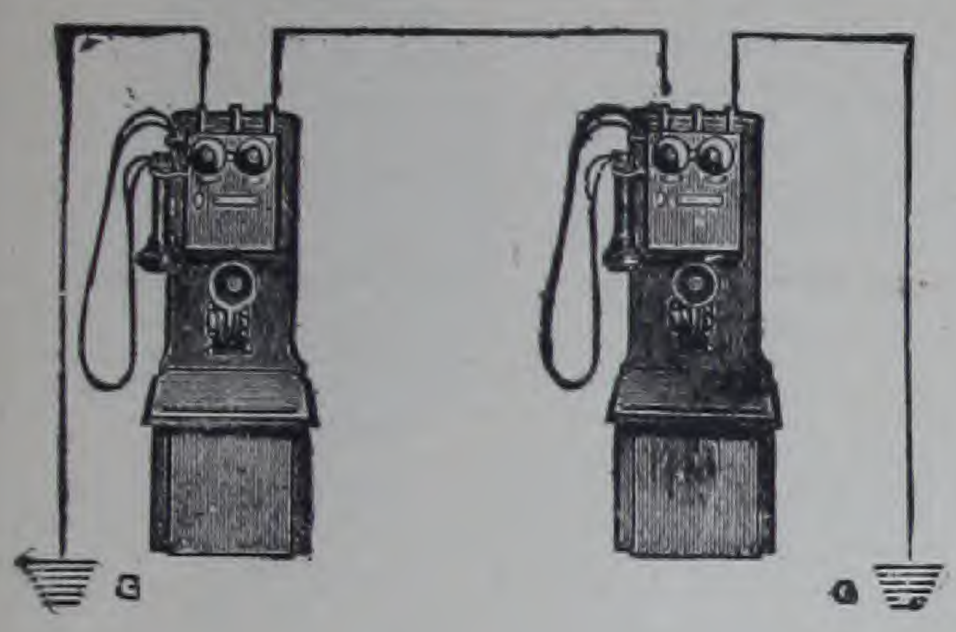
Our "Standard" Condensers are of approved design and of superior quality, due to their uniform capacity and ability to withstand high voltage without breakdown.

			Net Price.
Zacicux	19630	No. 199, ¼ M. F. capacity, size 2½x⅝x6½	.80
Zacicuy	19631	No. 200, ½ M. F. capacity, size 2½x⅝x6½	.90
Zacicuz	19632	No. 201, 1 M. F. capacity, size 3½x⅝x7	1.30
Zacida	19633	No. 202, 1½ M. F. capacity, size 4½x⅝x7½	1.50
Zacidab	19634	No. 203, 2 M. F. capacity, size 4¼x⅝x7½	1.70
Zacidac	19635	No. 204, 3 M. F. capacity, size 4¼x⅝x7½	2.50

No. 200, ½ M. F. capacity is the standard condenser for bridging telephones.

TELEPHONES.

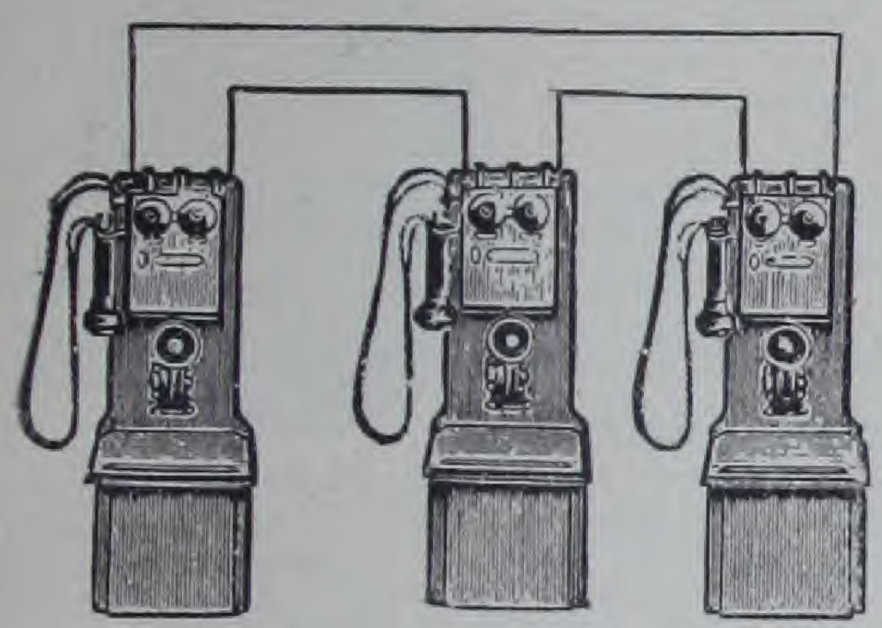
MAGNETO TELEPHONE WIRING DIAGRAMS.



No. 50.

SERIES GROUNDED LINE.

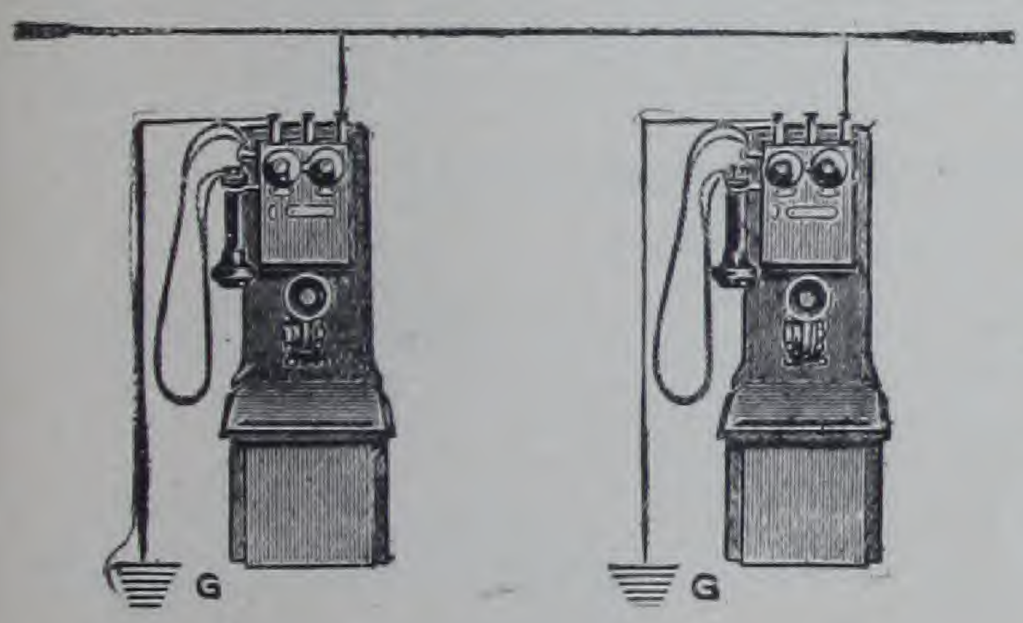
Lightning arrester is grounded from middle post.



No. 51.

SERIES METALLIC LINE.

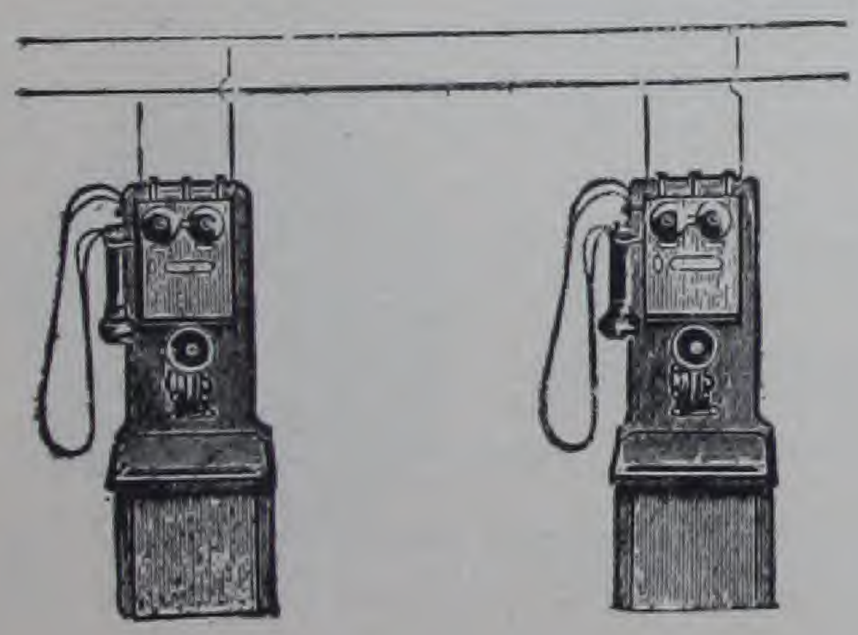
Lightning arrester is grounded from middle post.



No. 52.

BRIDGING GROUNDED LINE.

Lightning arrester is grounded from middle post.



No. 53.

BRIDGING METALLIC LINE.

Lightning arrester is grounded from middle post.

TELEPHONE ACCESSORIES.

TELEPHONE TRANSMITTERS.

SAMSON STRAIGHT-BRIDGE TRANSMITTER.

No. 22510.

Interior View.

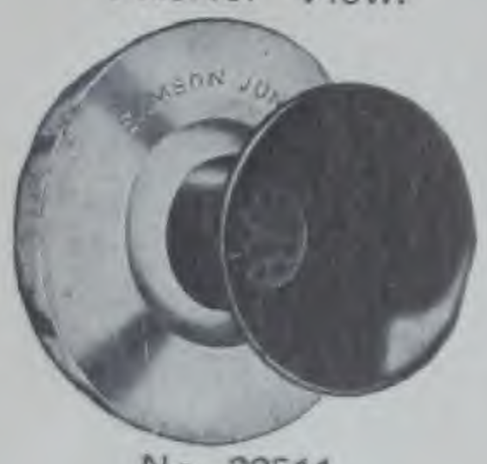
Patent allowed.

This is a long distance transmitter, built as well as we know how and without reference to initial cost. The front is a heavy casting, well nickel plated, and fitted with a genuine rubber mouthpiece. Dampening springs are used, having rubber terminals of improved design. We are confident that for general appearance, perfection in mechanical construction, clearness of enunciation, quality of tone, volume, elimination of side tones, and distance transmission, it excels any transmitter now being manufactured.

The construction of the microphone chamber is new in design and results. It consists of a rigid metal disc to which is secured the front electrode of mirror polished carbon. A cup of very resilient metal carries the mirror polished carbon back-electrode. It is fastened to the disc by means of a ring over which are bent lugs formed on the rigid disc. This mode of construction secures the full benefit of the vibratory action of the diaphragm, and produces a microphone chamber which is moisture-proof. The case in the Samson Transmitter forms no part of the circuit. Accidental contact with high-tension outside circuits is therefore avoided.

Code Word.	List No.		List Price.
Zabonex	22510	Samson Transmitter, with screws, nuts and washers for fastening it to woodwork, or to long adjustable arm	$3.00

THE IMPROVED SAMSON JUNIOR TRANSMITTER.



No. 22511.

Interior View.

Patent pending.

This Transmitter is built with special reference to securing good talking qualities and freedom from packing on lines of average length, such as in factory, hotel, residence, school and similar installations. The microphone chamber is damp-proof, which is of great advantage where phones may be subjected to dampness. A novel dampening spring is used having a central ring portion which surrounds the microphone chamber and rests against the rigid plate carrying the front electrode. Two wings, with their extremities bearing against the under side of the bridge, furnish the necessary tension.

Zaboney	22511	Samson Junior Transmitter	2.00

STAYRITE TRANSMITTER.

No. 22512.
Sectional View.

Patent pending.

A simple, permanent adjustment transmitter, with silver plated electrodes. The tools which form the two discs and join them together are so carefully made and operate so perfectly that while no adjustment is possible, uniformity of results in talking qualities and freedom from packing is secured. The transmitter proper, as shown, is fastened to a wood back, and a plated threaded neck is screwed to the wood front. A hole is bored through the wood to allow the voice currents to reach the diaphragm.

Zabonez	22512	Stayrite Transmitiers	1.50

MOUTHPIECES.

No. 22513.

In ordering Mouthpieces state name of Transmitter with which they are to be used, as diameters and threads are different.

Zaboni	22513	Rubber with male thread	.30
Zabonib	22514	Rubberoid with female thread	.20

DIAPHRAGMS.

In ordering Carbon Diaphragms state diameter and thickness desired.

Zabonic	22515	Aluminum diaphragms, 2½ in. diameter	.30
Zabonid	22516	Carbon Diaphragms	.20

TELEPHONE ACCESSORIES—(Continued).

TELEPHONE RECEIVERS.

No. 21360.

SAMSON WATCHCASE RECEIVER.

Magnets are inclosed in rubberoid case, protecting the fine magnet coil wires from accidental breakage. The rubberoid face being parallel with the diaphragm causes all the sound vibrations from the diaphragm to be exactly the same length, thus improving the tone. It is the highest grade watchcase receiver manufactured.

Code Word.	List No.		List Price, Each.
Zabiyob	21360	Samson Watchcase Receiver.....	$1.50

Special prices in quantities.

No. 21361.

SAMSON JUNIOR WATCHCASE RECEIVER.

Three heavily charged, permanent magnets are contained in this receiver. Coils are wound with silk wire. Inner rim of metal containing case is turned in and ground off, making a substantial seat for the diaphragm. The hook is riveted to the case and will not shake loose, as when screws are used.

Zabiyoc	21361	Samson Junior Watchcase Receiver..	1.20

Special prices in quantities.

LONG RECEIVERS.

Our receivers are well made with permanent magnets of standard weight and length. The steel is such that the magnetism is retained permanently. The "Solid" receiver type is made with the composition solidly moulded around the magnets.

Zabiyod	21362	Removable magnet rubberoid shell..	1.50
Zabiyof	21363	Removable magnet rubber shell.....	1.80
Zabiyog	21364	"Solid" Receiver, concealed binding posts and cord.....	1.70
Zabiyoh	21365	"Solid" Receiver, exposed binding posts	1.50

Special prices in quantities.

No. 21362.

RECEIVER CORDS.

We supply receiver cords of the same grade as used in our telephones. They are not the cheap kind, small and poorly braided and made exclusively of tinsel cord, but are well made and contain a number of strands of copper, which provides strength and conductivity.

Zabiyok	21366	18 inches, worsted.....	.30
Zabiyol	21367	24 inches, worsted.....	.34
Zabiyom	21368	30 inches, worsted.....	.38
Zabiyon	21369	36 inches, worsted.....	.42
Zabiyop	21370	18 inches, silk.....	.40
Zabiyor	21371	24 inches, silk.....	.44
Zabiyos	21372	30 inches, silk.....	.48
Zabiyot	21373	36 inches, silk.....	.52

No. 21367.

RUBBER RECEIVER CAP CUSHION.

This pneumatic cushion which is sprung over the receiver cap enables conversation to be heard in quite noisy locations, as the cushion fits closely to the ear. It is also more comfortably used than the hard shell of the receiver.

Zabiyov	21374	Receiver Cushions	.80

No. 21374.

RECEIVER CAPS.

In ordering receiver caps, state the name of the manufacturer of the receiver, as the threads of the shell are different.

Zabiyow	21375	Watchcase Receiver Cap.....	.20
Zabiyox	21376	Long Receiver Cap.....	.20
Zabiyoy	21377	Indestructible Cap for "Solid" Long Receiver	.28

RECEIVER DIAPHRAGMS.

Zabiyoz	21378	Watchcase Receiver.....	.10
Zabiyu	21379	Long Receiver.....	.10

TELEPHONE ACCESSORIES.

NO. 1 SHORT ADJUSTABLE ARM.

Arm only.
No. 21834.

This arm gives an adjustment 25 degrees above and 16 degrees below the horizontal, which at an average speaking distance of four inches from the mouthpiece, gives a range of eight inches. It is very compact, as it is made of brass nickel plated and conceals the conducting cord.

Code Word.	List No.		List Price, Each.
Zabocor	21834	No. 1 Adjustable Arm	$1.00

NO. 2 SHORT ADJUSTABLE ARM.

No. 21835.

This is a cast iron black enameled arm. All standard transmitters can be attached to it.

Zabocos	21835	No. 2 Adjustable Arm	1.00

NO. 3 LONG ADJUSTABLE ARM.

No. 21836.

This arm is 5½ inches long and made of cast iron, black enameled.

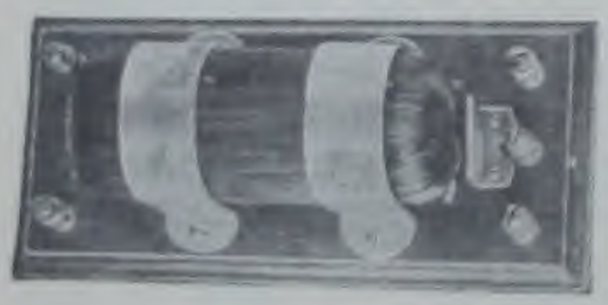
Zabocot	21836	No. 3 Adjustable Arm	1.00

INDUCTION COILS.

Our Induction Coils are carefully wound and have fibre heads. Terminal wires lead from coils and not as shown. The Box Type is made with wood casing covering coils.

No. 21838.

No. 21849.



No. 21851.

No. 21852.

FIBRE HEAD TYPE.

Zabocov	21837	20 ohm, 2½ inches	.80
Zabocow	21838	20 ohm, 4 inches	.90
Zabocox	21839	50 ohm, 2½ inches	.90
Zabocoy	21840	50 ohm, 4 inches	1.00
Zabocoz	21841	250 ohm, 2½ inches	.90
Zabocu	21842	250 ohm, 4 inches	1.00

BOX TYPE.

Zabocub	21843	2½ inches	.70
Zabocuc	21844	4 inches	.80
Zabocud	21845	2½ inches	.80
Zabocuf	21846	4 inches	.90
Zabocug	21847	2½ inches	.80
Zabocuh	21848	4 inches	.90

RETARDATION COIL.

A well designed coil, with a core of large mass, wound with well insulated wire inclosed in a soft iron tube closed at both ends.

Zabocuk	21849	No. 1, 25 ohm	3.00
Zabocul	21850	No. 2, 50 ohm	3.20

REPEATING COIL.

A well made coil of high impedence. Used for balancing circuits as between a grounded and a full metallic line.

Zabocum	21851	No. 10 Repeating Coil	6.00

NO. 13 CENTRAL ENERGY COIL.

This device, consisting of a properly wound induction coil mounted on a base containing a 2 Microfarad Condenser, is used in connecting up private telephone apparatus to Bell Lines.

Zabocun	21852	No. 13 Central Energy Coil	5.00

TELEPHONE ACCESSORIES.

No. 10896.

HEAD RECEIVERS.

Our Head Receiver is made with a spring head-piece covered with leather. This we find preferable to the two-band, which catches in the hair. The reproducing qualities of the receiver are of the very best. A cord 4 feet long, with plug, is also supplied.

Code Word.	List No.		List Price, Each.
Zabotam	10896	Head Receiver	$4.50
Zabotan	10897	4-foot Cord and Plug	2.00

No. 24818.

DESK TELEPHONES.

A high grade desk stand made of brass heavily nickeled. It can be disassembled by the removal of one screw. Contact points on springs are of genuine platinum. Price includes 5 feet of green silk cord and terminal block, but does not include signalling apparatus.

Zacodah	24818	Price, No. 130 private line (push in base)	15.00
Zacodak	24819	Terminal block with buzzer	.70
Zacodal	24820	Terminal block with bell	1.20

See illustration of terminal blocks on Page 56.

Zacodam	24821	No. 125 Bridging Magneto	15.00
Zacodan	24822	No. 126 Series Magneto	15.00

See Page 45 for signalling apparatus.

Zacodap	24823	No. 127 Central Energy	16.00

See Page 39 for signalling apparatus.

Zacodar	24824	Annunciphone Desk Sets	15.00

State whether the system is wired to No. 2, No. 3, or No. 5 diagram. Page 33.

Zacodas	24825	"Rotokoll" Desk Stand	15.00

State whether the system is wired to No. 4 or No. 5 diagram. Page 33.

Zacodat	24826	Kitchen Annunciator Telephone Desk Stands	15.00

Furnished for wiring diagram No. 7 only. Page 17.

Zacodav	24827	Desk stand for system No. 15	15.00
Zacodaw	24828	Intercommunicating Desk Stands	15.00

See pages describing the different systems.

For signalling apparatus used with the above desk stands see Pages 39, 45 and 56.

No. 10899.

HAND MICROPHONES.

Our Hand Microphone is made with a metal mouthpiece, thus obviating the objection to the rubber mouthpiece, which easily breaks. It is made with and without the switch in the handle, and fitted with the Samson Junior or Samson Transmitter. Furnished with 4 feet of cord.

Zabotar	10899	Hand Microphone, with switch and Samson Junior Transmitter	14.00
Zabotas	10900	Hand Microphone, without switch, with Samson Junior Transmitter	14.00
Zabotat	10901	With Samson Transmitter, extra	1.00

No. 24829.

"ADEZE" TELEPHONE INDEX.

An index with a capacity of 56 names. Attached in a position where it is supported by the base of the stand, and therefore not liable to be broken. Its attractive appearance and practicability merits its use for both office and home use.

Zacodax	24829	"Adeze" Telephone Index	.70

Special prices in quantities.

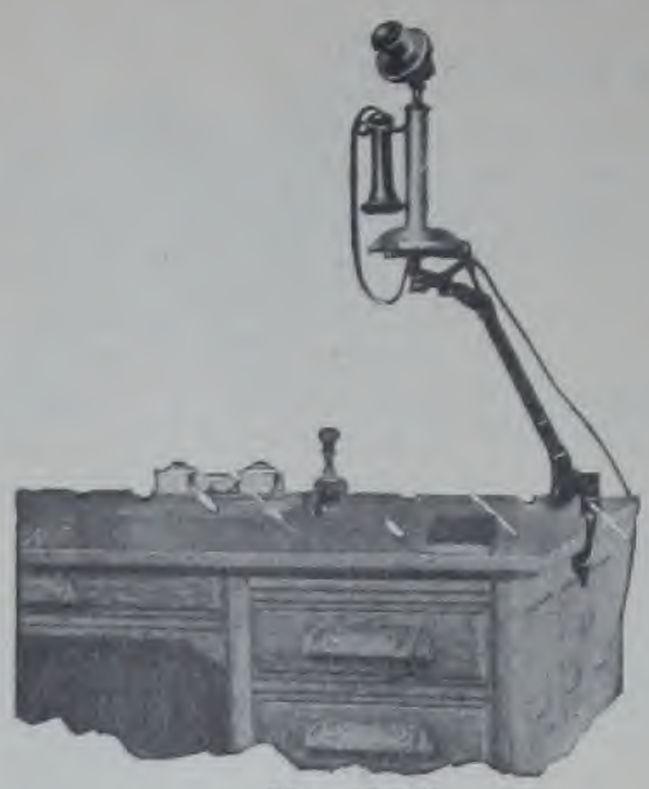
No. 10903.

HUB DESK BRACKET.

A strong, well made desk bracket for roll top desk, made with adjustable clamp for different sized desk stand bases. Carried in stock in oxidized copper.

Zabotaw	10903	Hub Desk Bracket (flat top)	2.00
Zacoday	24830	Hub Desk Bracket (roll top)	2.50

TELEPHONE ACCESSORIES.



No. 17772.

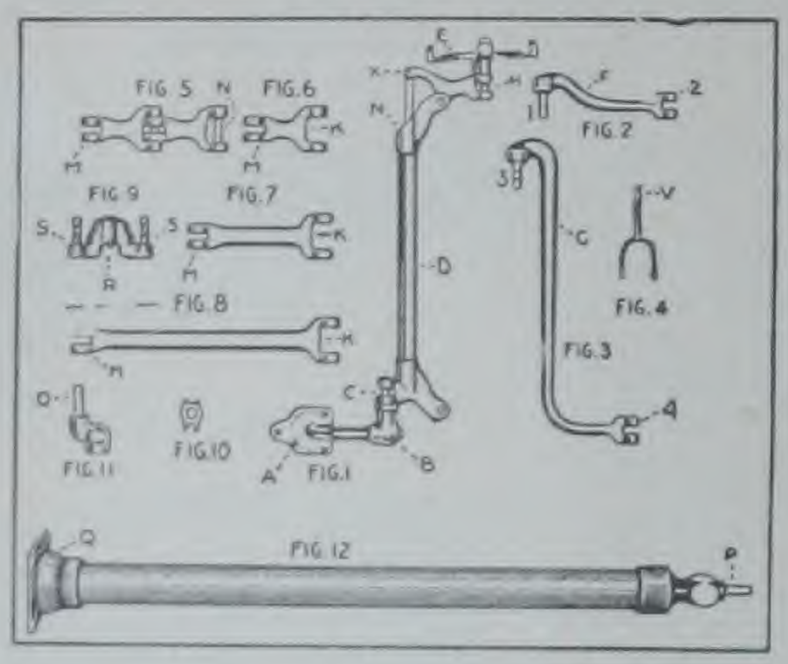
THE EQUIPOISE TELEPHONE ARM.

This is the latest device for holding telephone desk stands. It has a number of advantages over other stands. It swings over the desk, can be used in a sitting or standing position, and is perfectly balanced in any position. It is strong and well made, and can be readily attached to woodwork. Gun metal finish unless specially ordered. Detailed circulars illustrating different sizes and different combinations supplied on request.

Code Word.	List No.	Fig.		List Price, Each.
Zacegok	**17772**	1	The Equipoise Telephone Arm (standard size, 23 in. reach), see cut	**$4.50**
Zacegol	**17773**	2	Six inch Extensions for upper end of Equipoise Arm. When extended brings mouthpiece 29 inches from pivot; when folded back 16 inches	**50**
Zacegom	**17774**	3	Drop Extension to use with Equipoise Arm on top of roll of rolltop desks and similar positions; 10 in. drop Extension	**.75**
Zacegon	**17781**		15 in.	**.00**
Zacegop	**17775**	5 and 6	Three inch links used singly or in combination; when linked together as a chain with Equipoise Arm at outer end the phone and arm can be swung around corners, partitions, posts, etc. Each	**.35**
Zacegot	**17776**	7	Six inch link similar to the 3 in. link; used singly or in pairs for extending length of arms	**.50**
Zacego[illegible]	**17777**	8	Twelve inch link used singly with Equipoise Arm giving a reach of 35 in. or in connection with 6 in. extensions (Fig. 2) giving a reach of 41 in.	**.75**
Zacegot	**17778**	9	Yoke for connecting two Equipoise Arm on one pivot permitting arms to swing independently of each other or in unison. Free with two arms.	
Zacegov	**17779**	11	Special Vertical Head for end of attaching bracket; used only when it is desired to fasten the Equipoise Arm to end of flat top desk or to the wall, and must be specified in order, otherwise regular attaching head as shown (Fig. 1) is always sent	
Zacegow	**17780**	12	Floor stand to be screwed to floor in any convenient place, prevents marring of desks and furnishing, and will serve one, two or three arms and phones to two or more desks up to six and eight feet apart	**2.50**

Made in gun metal or nickel finish. Gun metal usually preferred, and is always sent unless nickel is specified.

Circulars showing auxiliary parts for longer reach and different purposes sent on request.

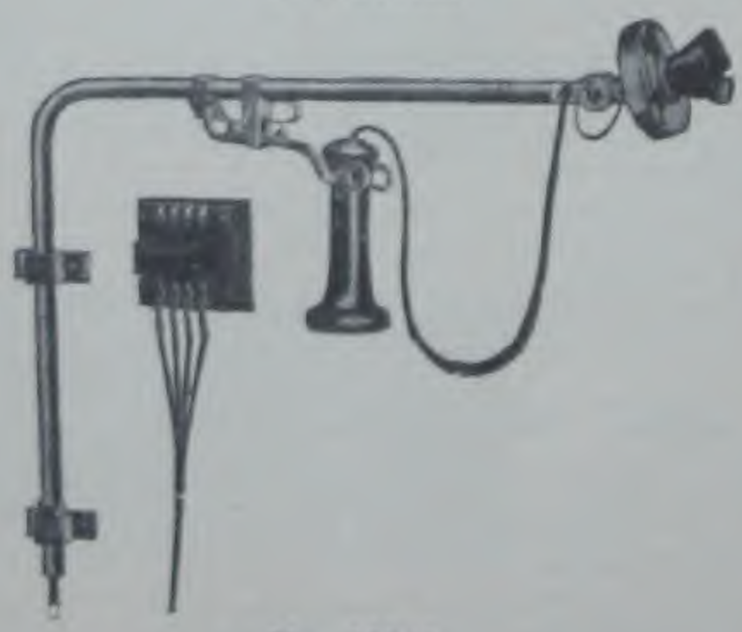


No. 10512.

THE ADJUSTIPHONE.

This device is very convenient for desk use. It has the advantage over desk set holders in that it is self-contained; that is, the transmitter and receiver form a part of the extension arm.

Zaborem	**10507**	No. 1—For roll top desk, 18 in.	**16.00**
Zaboren	**10508**	No. 2—For roll top desk, 26 in.	**18.00**
Zaborep	**10509**	No. 3—For wall, 18 in.	**16.00**
Zaborer	**10510**	No. 4—For wall, 26 in.	**18.00**
Zabores	**10511**	No. 5—For flat top desk, 18 in.	**16.00**
Zaboret	**10512**	No. 6—For flat top desk, 26 in.	**18.00**



No. 10513.

SWING-ARM DESK SET.

This style has some advantages over the ordinary desk set, in that it does not intrude upon the writing space of the desk. It is generally fastened to the side of a roll or flat top desk, or against the wall, depending upon the conditions.

Zaborev	**10513**	With terminal block and induction coil (state system or how used)	**20.00**
Zaborew	**10514**	Fitted with Samson Transmitter, extra	**1.00**

TELEPHONE ACCESSORIES.

SAMSON PLUGS.

No. 24376.

A solidly built plug, securely assembled to prevent loosening. Insulation so designed as to prevent "glazing" from contact with metal springs. This and the jack below tested on 200 volts after completion.

Code Word.	List No.		List Price, Each.
Zacixiv	24376		$1.50

SAMSON JACKS.

No. 24377.

The most practical jack manufactured. Built on the truss principle, pressure of the plug on the springs does not effect their adjustment, as they are rigidly supported on each side.

Zacixiw	24377		.80
Zacixix	24378	Mounted on rubber in multiple of 5 or 10 (each jack)	1.00

SWITCHBOARD CORDS.

No. 24380.

Best quality cords, such as used in our "Rotokoll" Switchboard, reinforced at plug end.

Zacixiy	24379	2 ft. Cords	1.00
Zacixiz	24380	3 ft. Cords	1.20
Zacixo	24381	4 ft. Cords	1.30
Zacixob	24382	5 ft. Cords	1.40

DESK STAND CORDS.

No. 10517.

We furnish desk stand cords of best quality, with twisted silk braided covering (not floss), by the yard and in 5 and 10 foot lengths, with deep terminal at one end and tip terminal at the other.

No. 10526.

		5-FOOT CORDS.	
Zaborex	10515	2 Conductor	.64
Zaborey	10516	3 Conductor	.96
Zaborez	10517	4 Conductor	1.20
Zabori	10518	5 Conductor	1.36
Zaborib	10519	10 Conductor	1.60
Zaboric	10520	15 Conductor	2.40
Zaborid	10521	20 Conductor	3.10
Zaborif	10522	25 Conductor	4.00
		10-FOOT CORDS.	
Zaborim	10527	2 Conductor	1.04
Zaborin	10528	3 Conductor	1.60
Zaborip	10529	4 Conductor	2.10
Zaborir	10530	5 Conductor	2.40
Zaboris	10531	10 Conductor	2.80
Zaborit	10533	15 Conductor	4.20
Zaboriv	10534	20 Conductor	5.60
Zaboriw	10535	25 Conductor	7.00
		CORD BY THE YARD.	Per Yd.
Zaborig	10523	2 Conductor	.30
Zaborih	10524	3 Conductor	.40
Zaborik	10525	4 Conductor	.50
Zaboril	10526	5 Conductor	.66
Zaborix	10536	10 Conductor	.80
Zaboriy	10537	15 Conductor	1.20
Zaboriz	10538	20 Conductor	1.50
Zaboro	10539	25 Conductor	1.90

VICTOR TELEPHONE BRACKET.

No. 24383.

This bracket is made for both flat and roll top desks, provides an extension of 18 inches and swings laterally on the support shown. It furnishes a desirable support for either of our six systems of intercommunicating telephones.

			Each.
Zacixoc	24383	No. 1 Victor bracket for roll top desk	5.00
Zacixod	24384	No. 2 Victor bracket for flat top desk	5.00

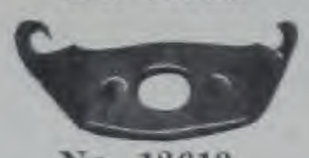
"ANTI-SEP" TELEPHONE DISINFECTOR.

No. 24385.

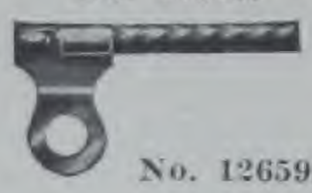
Fits any telephone mouthpiece. Prevents the germ of contagious diseases being deposited in the mouthpiece and the inner chamber of the transmitter. Also overcomes the odor of tobacco, liquor, and ill smelling breath which lingers in the recess. Does not affect the talking quality of the transmitter. Twelve extra diaphragms with each disinfector.

Zacixof	24385	"Anti-Sep" disinfector, per doz.	6.00

No. 12611.

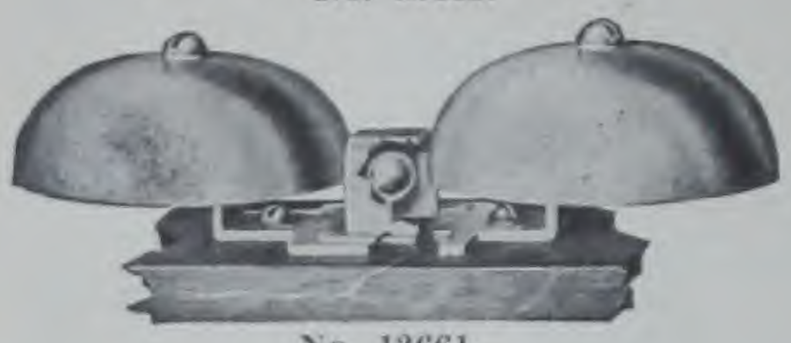


No. 12613.



No. 12659.

No. 12615.



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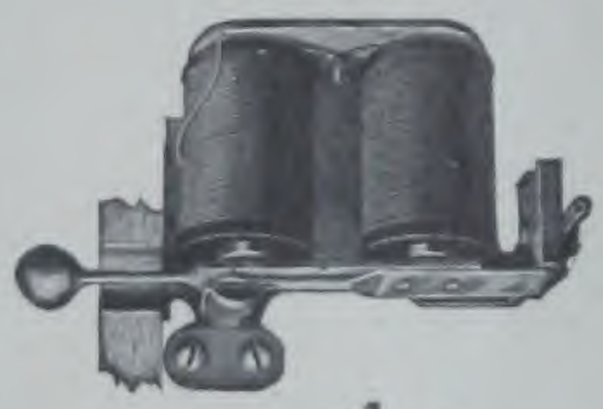
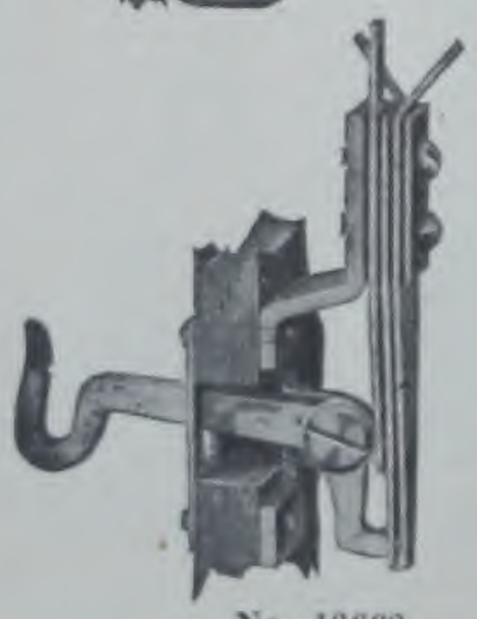




No. 12662.

No. 12663.

No. 12664.

TELEPHONE ACCESSORIES.

NO. 1 TERMINAL.

This is a terminal "without compare." It will not twist in the wood, while lugs prevent the wire from slipping from under the screw.

Code Word.	List No.		List Price.
Zabupos	**12611**	No. 1 Terminal.....Per doz.	**$0.75**
Zabupot	**12612**	No. 1 Terminal.....Per 100.	**4.00**

NO. 2 TERMINAL.

For soldered connections this terminal is very desirable. Depressions in the metal prevent it from turning.

Zabupov	**12613**	No. 2 Terminal.....Per doz.	**.30**
Zabupow	**12614**	No. 2 Terminal.....Per 100.	**2.00**

NO. 3 TERMINAL.

This is a double tagged terminal enabling tests to be made without disturbing the other connection. Screws are not furnished.

Zabupox	**12615**	No. 3 Terminal.....Per doz.	**.50**
Zabupoy	**12616**	No. 3 Terminal.....Per 100.	**3.00**

NO. 4 TERMINAL.

Made for use with flexible cord. The curled portion shown clamps the covering and takes the strain from the soldered ends.

Zabupoz	**12659**	No. 4 Terminal.....Per doz.	**.30**
Zabupu	**12660**	No. 4 Terminal.....Per 100.	**2.00**

VICTOR TELEPHONE BELL.

One of the most important details of battery telephone construction is the bell, as a signal must be received before conversation can take place. The double gongs in our Victor Bell mechanism are mounted on a one-piece bracket by means of which they are always kept the same distance apart. An important feature is the protection of the hammer ball from possibility of tampering. The bell is designed especially for long service without the necessity of adjustment. The circuit breaker is both novel and simple. We secure proper adjustment of the armature spring by the use of a brass lug carrying the contact point, thus dispensing with the ordinarily used adjusting screw.

Zabupub	**12661**	Victor Telephone Bell.....Each.	**1.00**

SAMSON JUNIOR SWITCH-HOOK.

We have used this switch with great success in thousands of our telephones, where it has given satisfaction. The hook escutcheon is fastened to the case in the same manner as in the Samson Switch-Hook. It is made for both long and short receiver.

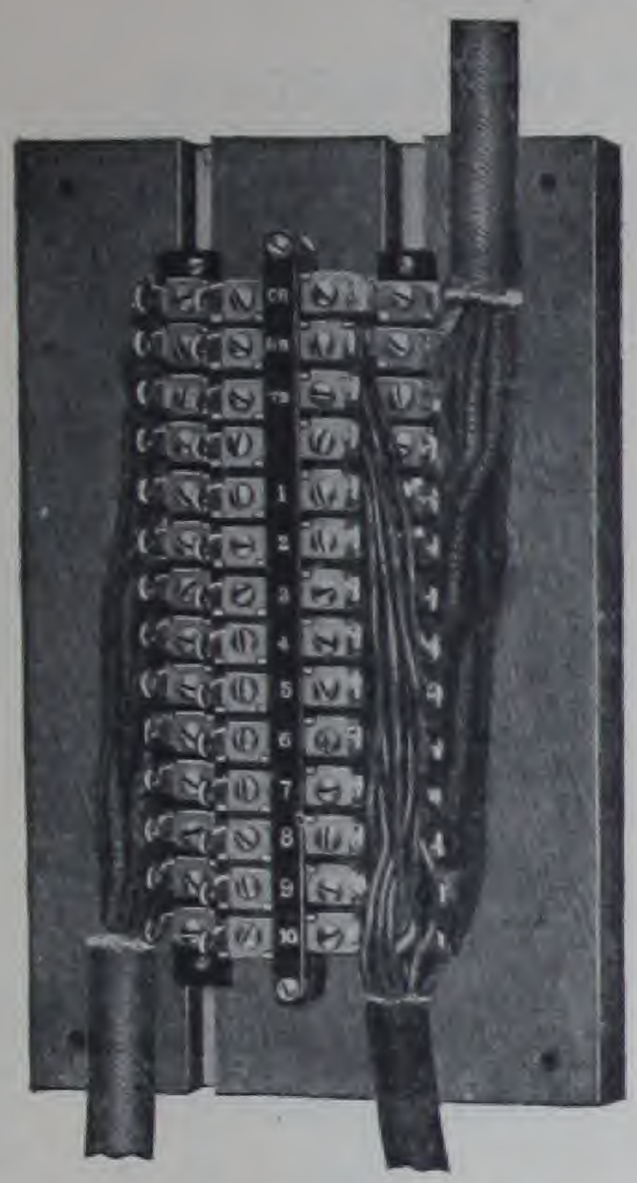
Zabupuc	**12662**	Samson Junior Switch-Hook, for W. C. Receiver.....Each.	**.70**
Zabupud	**12663**	Samson Junior Switch-Hook, for long Receiver .....Each.	**1.00**

SAMSON SWITCH-HOOK.

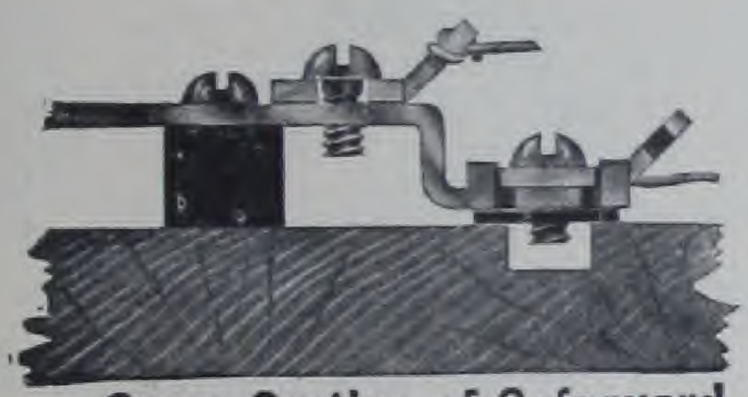
Instead of the usual faulty springs, in which the possibility of a false circuit occurring is always present, controlled springs under tension which absolutely prevents such difficulty are used. The upper springs rest under tension on the top of a rubber stud which is slotted horizontally (see cut). The middle spring, which elevates the hook, straddles the stud, while the lower spring rests under tension against the upper side of the horizontal slot. There is thus a fixed unalterable distance of separation between the springs, which positively prevents short circuits. The plate which slides in a depression in the escutcheon serves to keep bugs and dust out of the cabinet. This escutcheon is fastened by means of screws to the hook switch casting, which will never stick, as is true when the escutcheon is screwed separately to the cabinet.

Zabupuf	**12664**	Samson Switch-Hook, long Receiver .....Each.	**1.50**
Zabupug	**12665**	Samson Switch-Hook, W. C. Receiver .....Each.	**1.50**

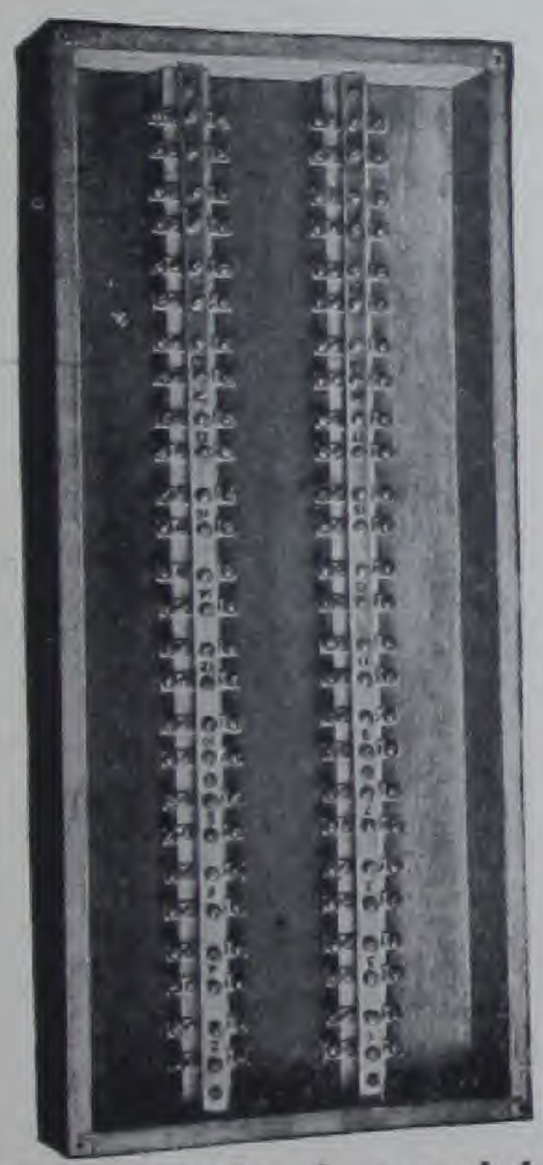
TELEPHONE ACCESSORIES.



Safeguard Junction Box, Cover Removed.



Cross-Section of Safeguard Junction Box.



Junction Box for Annunciphones and Rotokolls.

JUNCTION BOXES.

"SAFEGUARD" FOR INTERCOMMUNICATING TELEPHONES.

This junction box has received the approval of every contractor who has used same in connection with our own or other makes of telephones. It has among others the following advantages:

It can be connected up in one-fourth of the time used in making soldered joints; gives a better connection than soldering, as it is frequently done, and assures positive connection without twisting wire around screws, which often results in squeezing out the wire. A separate terminal is provided for each end of the main cable, and for "taps" to two stations; instant release of any wire for testing; terminal strips mounted on hard rubber; connection not affected by vibration; accidental short circuiting impossible between conductors; every terminal distinctly marked. Each box is provided with four extra terminals for the common return wires and one "spare." The device is provided with a cover which is tongued and grooved to prevent warping. Total depth with cover of all sizes, 1¾ inches.

NO. 1 COMMON RETURN TYPE.

Code Word.	List No.		Size, Inches.	List Price, Each.
Zacinif	22832	8 Stations	5½x 7½	$2.00
Zacinig	22833	12 Stations	5½x 9¼	3.00
Zacinih	22834	16 Stations	5½x11	4.00
Zacinik	22835	20 Stations	5½x12¾	5.00
Zacinil	22836	24 Stations	5½x13½	6.00

NO. 2 METALLIC CIRCUIT TYPE.

Zacinim	22837	8 Stations	5½x11	3.00
Zacinin	22838	12 Stations	5½x14½	5.00
Zacinip	22839	16 Stations	5½x18	6.50
Zacinir	22840	20 Stations	5½x21½	8.00
Zacinis	22841	24 Stations	5½x25	9.50

JUNCTION BOXES.

FOR ANNUNCIPHONES AND ROTOKOLLS.

In hotel work where our Annunciphones or Rotokolls are installed most contractors prefer to bring all of the wiring on each floor to a junction box, which makes a convenient point from which testing can be done should trouble occur. It is also desirable to use a junction box where lines are to be carried to an adjoining building. It is particularly desirable where our 3-Conductor Samson Cable is used, wiring diagram No. 5, as a common metallic strip is provided for the common wire as shown in the illustration.

Zacinit	22842	For 25 Station equipments..	5.00
Zaciniv	22843	For 50 Station equipments..	7.00
Zaciniw	22844	For 75 Station equipments..	10.00
Zacinix	22845	For 100 Station equipments.	15.00

SPECIAL JUNCTION BOXES.

We furnish Special Junction Boxes provided with lines for soldering wires to terminal clips, which can be removed from the terminal strips after testing where contractors prefer this method. Photographs supplied and prices quoted for both No. 4 (2 wire) and No. 5 (3 wire) systems of wiring. See Page 33.

TELEPHONE ACCESSORIES.

INCLINED FACE SWITCH BLOCK.

No. 24804.
Size of Base, 5¼x5¾.

These switch blocks, having an inclined face for use on desks, are favorite styles with some users. The ones we illustrate are finely finished and made with weight in base. Extra weight is used in switch arm style, to restrain any movement of the base when the arm is being operated.

NO. 240. PUSH BUTTON STYLE.

Code Word.	List No.	Size.	List Price, Each.
Zacocox	24802	4-button, 5¼x3⅝ inches	$6.00
Zacocoy	24803	8-button, 5¼x4⅝ inches	7.00
Zacococz	24804	12-button, 5¼x5⅝ inches	8.00
Zacocu	24805	16-button, 5¼x6⅝ inches	9.00
Zacocub	24806	Stamping names, extra per letter.	.03

No. 24809.
Size of Base, 5¼x5¾ in.

NO. 244. SWITCH STYLE.

Zacocuc	24807	4-point, 5¼x3⅝ inches	10.00
Zacocud	24808	8-point, 5¼x4⅝ inches	11.00
Zacocuf	24809	12-point, 5¼x5⅝ inches	12.00
Zacocug	24810	16-point, 5¼x6⅝ inches	13.00
Zacocuh	24811	20-point, 5¼x6⅝ inches	14.00
		Stamping names, per letter, extra.	.03

NO. 242. JACK STYLE.

Zacocuk	24812	4 jacks, 5¼x3⅝ inches	7.00
Zacocul	24813	8 jacks, 5¼x4⅝ inches	8.00
Zacocum	24814	12 jacks, 5¼x5⅝ inches	9.00
Zacocun	24815	16 jacks, 5¼x6⅝ inches	10.00
Zacocup	25816	20 jacks, 5¼x6⅝ inches	11.00
		Stamping names, per letter, extra.	.03

Open.

NO. 120. COVERED TERMINAL BLOCKS.

This block meets a call for a terminal block with covered terminals. The bell style mechanism buzzer is preferable to the watchcase in this block.

Zabuhal	12023	4-station covered block	1.50
Zabuham	12024	Additional terminals in multiples of 4	.50

No. 12026.

TERMINAL BLOCK WITH SIGNALLING DEVICE.

When terminal blocks for use in connection with desk stands are fitted with bell or buzzer, an extra charge is made as per price below.

Zabuhan	12025	Terminal block with vibrator bell	1.20
Zabuhap	12026	Terminal block with watchcase buzzer	.70
Zabuhar	12027	Terminal block with bell buzzer	1.20

MULTIPLE CONDUCTOR SEPARABLE CORD BLOCK.

No. 12028.

When only temporary use of a desk stand is required we furnish bases with sockets inserted and hard rubber blocks containing the necessary number of plugs. The arrangement is such that no mistake can be made in inserting the plugs. See desk stand with push button in base.

Zabuhas	12028	4 Station Separable Desk Stand Block, 5 ft. cord.	12.00
Zabuhat	12029	Extra for additional stations	.50

TELEPHONE ACCESSORIES.

Blackburn Ground Clamp.

BLACKBURN GROUND CLAMP.

It is used to attach a "ground" wire of an electric circuit to a water pipe in telephone or electric gas lighting installation. The turning action of the screw secures a clean contact on the pipe. Other clamps require cleaning and polishing of the pipe.

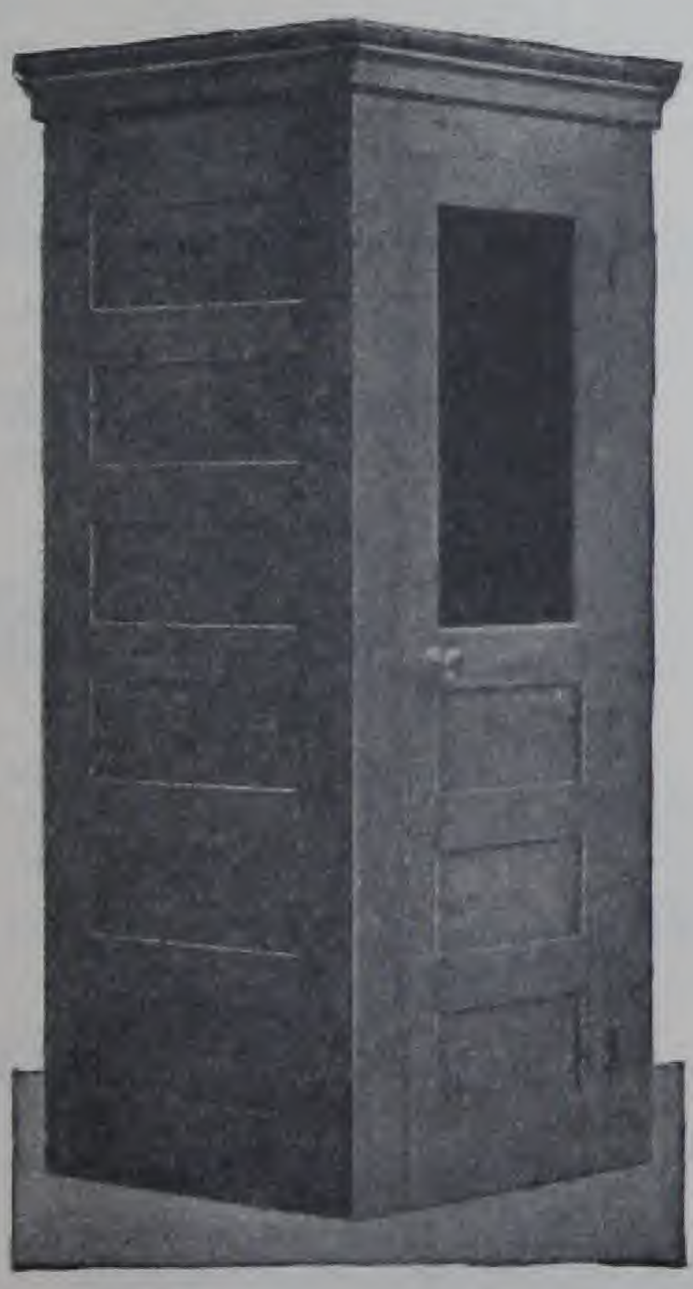
Code Word.	List No.		Each.	Per 100.
Zacimud	22656	No. 1 fits pipe from ⅜ to 1¼ inch.....	$0.20	$15.00
Zacimuf	22657	No. 2 fits pipe from 1½ to 3 inch.....	.22	16.00

Switchboard Operator's Chair.

SWITCHBOARD OPERATOR'S CHAIR.

This is a steel rod revolving chair with foot rest. The seat and back can be easily adjusted to any position by the occupant. The height of the chair can also be regulated. The framework is made of Bessemer steel, ⅜ inch rods twisted and interwoven. Wood work, oak, birch, or mahogany, as specified. Metal work, heavy Japanese copper plate.

Zacimug	22658	Switchboard chair, price.....	7.00



Type No. 1 Telephone Booth.

TELEPHONE BOOTHS.

There are certain lines of manufacturing where the noise made by the machinery makes it impossible to hear distinctly over the telephone system unless the telephone is enclosed in a sound proof booth. Where, in addition to the noise, there is great vibration from heavy machinery, it is always advisable for the operator's instrument to be a desk set, as in holding the desk set in the hand the excessive vibration is taken up by the body.

TYPE 1.

This type has single walls only. The floor space occupied is 2 ft. 6 in. by 2 ft. 8 in. Shipping weight about 300 pounds

Zacimuh	22659	Price, each.....	55.00

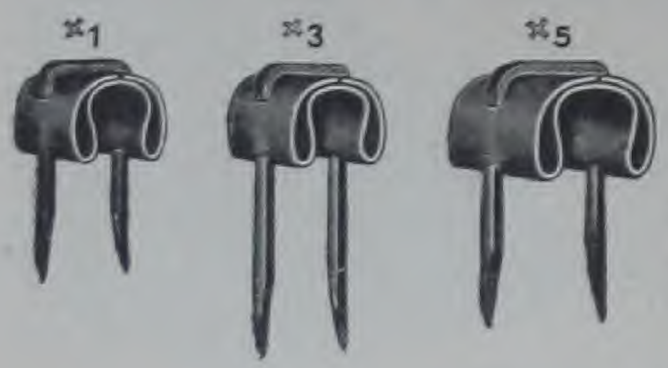
TYPE 2.

This booth has double walls. Floor space occupied, 2 ft. 8 in. by 3 ft. 2 in. Shipping weight, about 500 pounds.

Zacimuk	22660	Price, each.....	75.00

TELEPHONE ACCESSORIES.

APPLIANCES FOR INTERIOR INSTALLATION.



INSULATED TACKS.

These tacks can be used without fear of short-circuiting the wires in driving, as they are insulated with fibre. The No. 1 for twisted pair and single wires in hard wood, and the No. 3 for the same wires for general use. The No. 5 is for 3-conductor and extra heavy twisted pair for hard wood, and the No. 7 for the same wires for general use. Put up in boxes of 100 tacks.

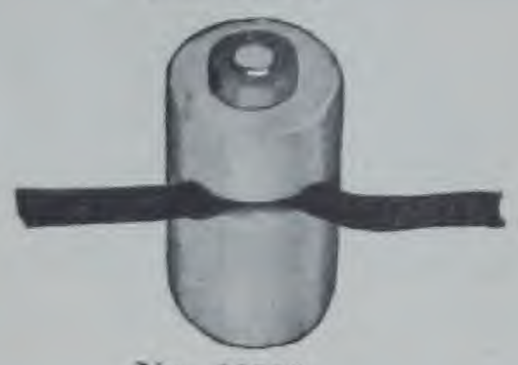
Code Word.	List No.		List Price.
Zabonob	22534	No. 1, per hd	$ .30
Zabonoc	22535	No. 3, per hd	.30
Zabonod	22536	No. 5, per hd	.34
Zabonof	22537	No. 7, per hd	.34

No. 22538.

COMPRESSED WOOD CLEATS.

Designed for use on plastering or where insulated staples cannot be used. They are impervious to dampness and moisture and will not break. They can be used with screws or wire nails; 100 in a package.

Zabonog	22538	Per hd	.70
Zabonoh	22539	Per M	5.50



No. 22552.

"STAR" PORCELAIN KNOBS.

Well designed for installing wires or Samson 3-conductor dampproof cable for telephone work where there is liability that dampness may occur on the surface, such as behind plastering, on damp walls, etc. The knob clamps the wire perfectly. Nail heads should be used to prevent breakage if wire nails are used in fastening.

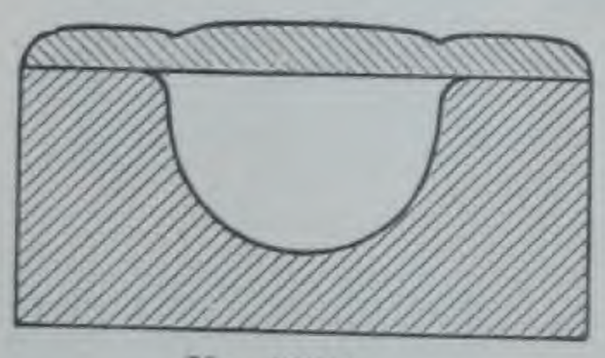
Zabonoz	22552	Star Knobs, per hd	2.00

No. 22545.

GALVANIZED IRON CLIPS.

Used for fastening cable or bunching wires. It is advisable to protect the cable by winding frictional tape around the clip.

Zabonok	22545	½ inch per hd	1.00
Zabonon	22542	¾ inch per hd	1.50
Zabonol	22540	1 inch per hd	2.00
Zabonop	22543	1¼ inch per hd	2.50
Zabonom	22541	1½ inch per hd	3.00
Zabonor	22544	2 inch per hd	4.00



No. 22546.

WOOD MOULDING.

This is treated white wood for carrying wires or cables. It comes in random lengths of from 10 to 15 feet.

Zabonos	22546	No. 914, ¾ inch slot, per ft	.10
Zabonot	22547	No. 1923, 1¼ inch slot, per ft	.16

No. 22548.

INSULATED BRIDLE RINGS.

For temporary or permanent suspension of single wires or of 2 or conductor cables. They are covered with three coats of baked insulating enamel. A quick and convenient method of wiring.

Zabonov	22548	⅝ inch hole, each	.08
Zabonow	22549	1⅝ inch hole, each	.12
Zabonox	22550	1¼ inch hole, each	.12

No. 22551.

"N. E. T." PORCELAIN CLEAT.

This cleat is used extensively for telephone work. Backs are used when it is desired.

Zabonoy	22551	Cleats, per hd	1.00

No. 22553.

LEATHER NAIL HEADS.

Nail heads are used under the heads of wire nails to prevent breaking porcelain insulators. Ours are uniform in thickness and cut from a good quality of stock.

Zabonu	22553	Per M	.60

TELEPHONE ACCESSORIES.

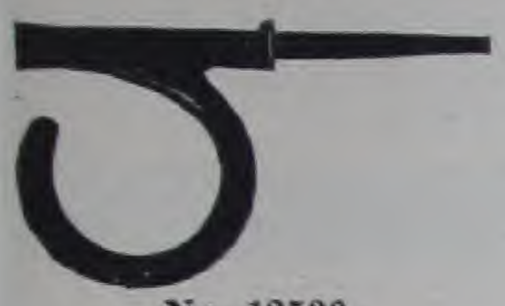
ENAMELED BRIDLE RINGS.

No. 12526.

A well adapted support for carrying telephone wires, as they are protected from contact with the metal by a triple glazed enameled surface. The wire can be quickly installed or removed, although it cannot fall out accidentally on account of the retaining hook.

Code Word.	List No.		List Price, Each.
Zabunus	**12526**	Style A, 1⅝ inch eye, 1¼ inch shank	**$0.12**
Zabunut	**12527**	Style C, 1¼ inch eye, 1¼ inch shank	**.12**
Zabunuv	**12528**	Style E, ⅝ inch eye, ⅞ inch shank	**.08**
Zabunuw	**12529**	Style F, 3 inch eye, 1¼ inch shank	**.18**

O'NEIL TELEPHONE HOOK.



No. 12530.

This hook forms an inexpensive support for telephone wires. It is made of malleable iron, japanned.

Zabunux	**12530**	Size No. 1, size of eye 1¼ inch	**.04**
Zabunuy	**12531**	Size No. 2, size of eye 1½ inch	**.14**
Zabunuz	**12532**	Size No. 3, size of eye 1¾ inch	**.20**

TELEPHONE HOUSE BRACKET.

No. 12533.

This is made of malleable galvanized iron and carries a porcelain insulator. If a "messenger" wire is used, it is "dead ended" around the insulator and the "twisted pair" passed through the insulator to the point of entrance in the building.

Zabupa	**12533**	Single, with porcelain insulator	**.30**
Zabupab	**12534**	Double, with porcelain insulator	**.60**

MESSENGER WIRES.

The following single strand and stranded cables are used to support wires or cables by means of metal or Marlin cable hangers, as described below.

No. 12535.

		No.	Size of Coils, Mile.	Lbs. per 1,000 Ft.	Prices
Zabupac	**12535**	6 B.B. Galv. Iron Wire.	¼	109	on
Zabupad	**12536**	9 B.B. Galv. Iron Wire.	½	58	appli-
Zabupaf	**12537**	12 B.B. Galv. Iron Wire.	½	31	cation.

		No.	Diam., Inch.	Size of Coils, Feet.	Lbs. per 1,000 Ft.	Prices
Zabupag	**12538**	3 strand (12 B.B.)	¼	1,000	10	on
Zabupah	**12539**	7 strand (15 B.B.)	¼	1,000	13	appli-
Zabupak	**12540**	7 strand (12 B.B.)	5/16	1,000	22	cation.

Single strand wire in broken coils, 3c. extra per lb.
Galvanized iron wire billed at ruling prices.

MARLIN CABLE HANGERS.

No. 24837.

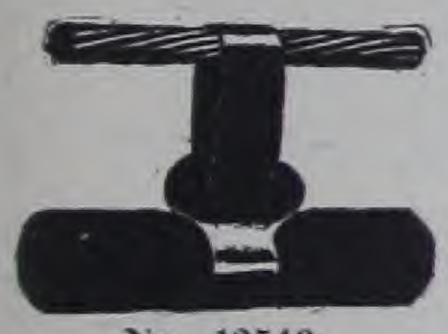
Illustrations show the common and Swisher types of hangers. The latter is easy to install, cannot be accidentally detached from strand, will not straighten under strain, does not catch sagging wires, can be drawn along cable without opening the hook. Both styles are made of best Marlin with galvanized iron hooks.

Zacodeg	**24837**	Regular type	**4.00**
Zacodeh	**24838**	Swisher type	**4.00**

Write for samples and discounts on quantities.

No. 24838.

METAL CABLE HANGERS.



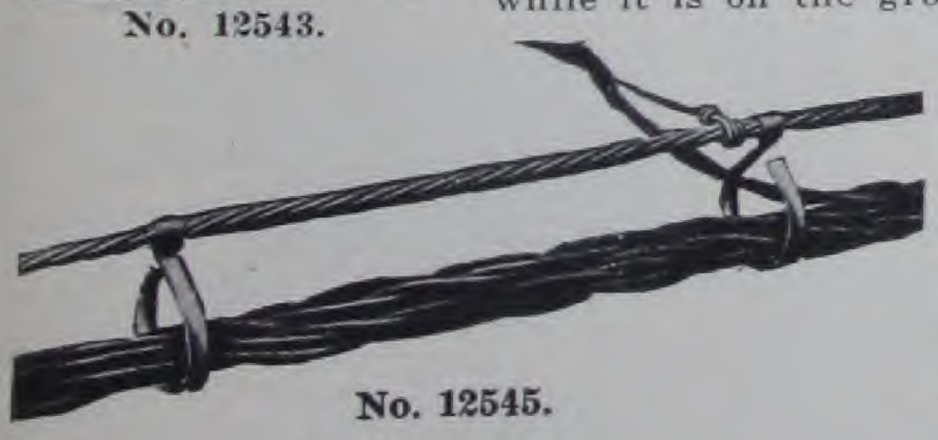
No. 12543.

This is a first-class hanger; is made of strip zinc in one piece and is strong and durable.

Zabupan	**12543**		**4.00**
Zabupap	**12544**	Boston Cable Hanger	**6.00**

LOCKE MESSENGER WIRE RINGS.

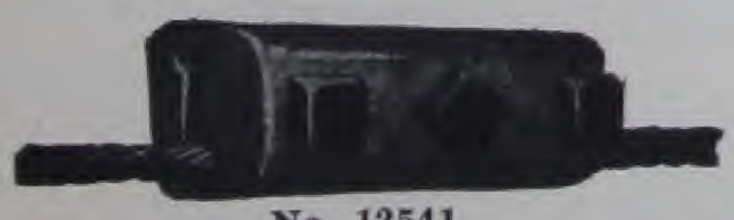
A most practicable method of supporting cable of twisted pair telephone wires. It obviates the use of arms, pins and glass insulators, and through its use reduces the number of poles required. It consists of a corrugtaed galvanized iron ring, 1¾ inches in diameter, which is fastened to the wire while it is on the ground; by means of a chair slung to the messenger wire or by the use of a ladder placed against the wire, the rings are placed one or two feet apart and fastened to the wire by means of a special pair of pliers. In cases where additional wires are to be later installed, it is advisable to run in the rings a length of Marlin, in order that additional wires may be strung quickly and economically. Wires to stations can be distributed from the main line by the use of No. 12 gauge iron wire shown in illustration.



No. 12545.

Zabupar	**12545**	Cable rings,, per 100	**4.00**
Zabupas	**12546**	Special pliers for attaching same, per pair	**2.50**

MESSENGER WIRE CLAMP.



No. 12541.

Zabudal	**12541**	With two bolts and one lag screw	**.40**

TELEPHONE ACCESSORIES.

TELEPHONE WIRE FOR INSIDE USE.

No. 12514.

Type "A", Twisted Pair Rubber Covered.

Prices Subject to Market Fluctuations.

TYPE "A."
TWISTED PAIR RUBBER COVERED.

This wire is carried in stock in No. 18 and No. 19; the insulation is rubber with a linen outside braid, one conductor having a designating strand for testing. This wire is used in the installation of the Rotokoll Central Energy switchboard, wiring diagrams No. 4, No. 10, No. 12, or with magneto telephone (see index).

Code Word.	List No.		List Price.
Zabunnow	12514	Twisted Pair Rubber, No. 18, per 1000 ft.	**$22.20**
Zabunnox	12515	Twisted Pair Rubber, No. 19, per 1000 ft.	**17.80**

No. 12516.

Type "B," 3-Conductor "Samson" Damp-Proof.

TYPE "B."
3-CONDUCTOR "SAMSON" DAMP-PROOF.

This wire has been a boon to the contractor, as it requires no "tapping" of a "common return." The first covering of the conductors is a weather-proof winding, then a second winding in designating colors, then a heavy cotton braid thoroughly impregnated with weather-proof compound. Actual practice has demonstrated that there is a time saving of 50 per cent. in its installation. It is used in installing Annunciphones, Rotokoll switchboards (diagrams 2 and 5, and also on systems wired Nos. 14, 15, 16, 16), where Vibrating bells are used. It must not be installed where excessive dampness is present or expected, nor should double pointed tacks be used unless they are of the insulated type.

Zabunny 12516 3-Cond. Samson, 40 ft. to lb., per lb. . . . **.80**

No. 12517.

Type "C," 3-Conductor "Samson" Twisted Rubber.

TYPE "C."
3-CONDUCTOR "SAMSON" TWISTED RUBBER.

Where rubber covered wire is preferred when installing Annunciphones or the Rotokoll Central Energy switchboard, using Vibrating bells, and the most positive assurance against possible damp conditions occurring in the future, this wire will be found satisfactory. The insulation is 1-32 inch rubber and on the outside a brown linen braid having designating strands. Used with wiring diagrams Nos. 2, 7 and 5 (see index).

Zabunoo 12517 3-Cond. Twisted Rubber, per 1000 ft. **58.00**

No. 12518.

Type "D," "Safeguard" Common Return Damp-Proof Intercommunicating Cable.

TYPE "D."
"SAFEGUARD" COMMON RETURN DAMP-PROOF INTERCOMMUNICATING CABLE.

This cable met with instant success upon its introduction two years ago. It saves the expense of individual wires, which must be either No. 16 or No. 18 gauge, labor cost, owing to its extremely quick installation; while it facilitates the installation of a telephone system on the part of the contractor, as the cable is kept in stock for immediate shipment. The individual conductors are No. 20, which is large enough for perfect telephonic service, but not of sufficient tensile strength used individually. The first covering is weatherproof, then a braided colored covering, every conductor different in color. The common-return wires are larger than the individual conductors. The latter are wound concentrically and then covered with two overlapping layers of paraffined paper wound opposite, then with a covering of braided weatherproof and with an outer covering of jack colored non-corroding linen braid. This method produces a cable particularly for ordinary intercommunicating connection. It can be utilized with wiring diagrams Nos. 17, 19, 20, 22, 23 (see index).

		Conductors.	No. Buttons.	Diam. Inches.	Feet in Pound.	Per Pound.
Zabunno	12518	8	8	1-2	8	.60
Zabunnob	12519	12	6	9-16	6	.80
Zabunnoc	12520	16	12	5-8	5	.80
Zabunnod	12521	20	16	11-16	4 5/8	.80
Zabunnof	12522	24	20	3-4	4	.80

No. 12523.

Type "E," "Safeguard" Twisted Pair Damp-Proof Intercommunicating Cable.

TYPE "E."
"SAFEGUARD" TWISTED PAIR DAMP-PROOF INTERCOMMUNICATING CABLE.

This wire is applicable for use with the "Everson" automatic telephone when wired metallic circuit. Wiring diagrams Nos. 18 and 21 (see index). The conductors are No. 20 gauge, having one winding of silk and two of cotton. Each pair has a designating color. The cable provides for the use of one more station than the number of buttons on telephone.

		Pairs.	Buttons.	No. Stations.	Per Foot.
Zabunng	12523	10	9	9	.29
Zabunnh	12524	14	11	12	.38
Zabunnk	12525	18	16	17	.36
Zaunfng	12526	22	20	21	.44

TELEPHONE ACCESSORIES.

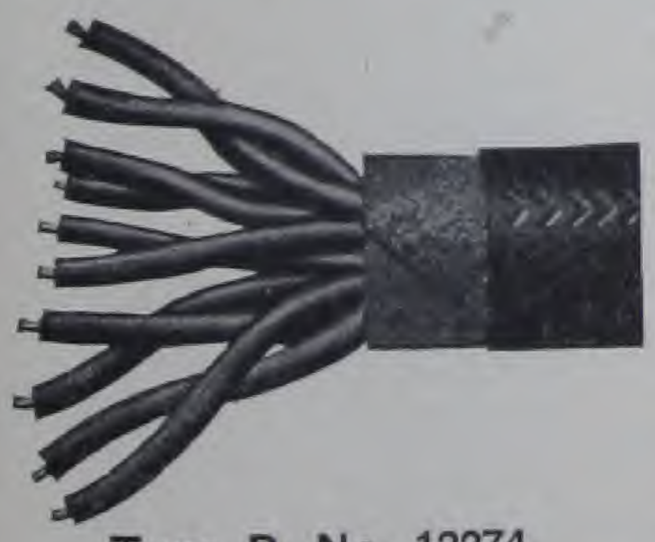
Type J, No. 12263.
Twisted Pair, Rubber Covered.

Type K, No. 12264.
3 Conductor "Samson" Water-Proof.

Type L, No. 12265.
2 Conductor Lead Encased, Rubber Insulated.

Type M, No. 12267.
3 Conductor Lead Encased, Rubber Insulated.

Type O, No. 12269.
Common Return "Safeguard" Water-Proof Intercommunicating Cable.



Type P, No. 12274.
Twisted Pair "Safeguard" Water-Proof Intercommunicating Cable.

TELEPHONE WIRES FOR OUTSIDE USE.

In stock. Prices subject to market fluctuations.

TYPE "J."
TWISTED PAIR WATER-PROOF.

This wire should be No. 16 in order that it be of sufficient strength to withstand storms possibly accompanied by sleet and snow. The insulation is rubber with an outside covering of heavy weatherproof braid. This wire is used with the Rotokoll Central Energy switchboard, wiring diagram No. 4, or with private line telephones, wiring diagrams Nos. 10, 12.

Code Word.	List No.		List Price, per 1000 Ft.
Zabulil	12263		$20.00

TYPE "K."
3 CONDUCTOR WATER-PROOF, RUBBER INSULATED.

This is an excellent wire for outside use. The conductors are No. 18 with 3-32-inch rubber insulation. After twisting the conductors, they are wound with rubber tape and then covered with a heavy water-proof braided slicked braid. This wire is used with the Annunciphone and Rotokoll Central Energy switchboard systems, using Vibrating bells. Wiring diagrams Nos. 3, 5, 11, 13, 15 and 16. (See index.)

			Per Ft.
Zabulim	12264		.06

TYPE "L."
2 CONDUCTOR LEAD ENCASED, RUBBER INSULATED.

Lead encased 2-conductor wire is installed in interior work where excessive dampness is encountered, such as in refrigerator establishments, where live steam is used in rooms and passes into the atmosphere; where excessive heat is present which would affect rubber covering; in chemical factories where acids are used. For this latter work, the lead must be composed of a special combination of metals or it will be attacked by acetic acid. This wire is used with the Rotokoll Central Energy switchboard using polarized ringer bells, and private line use. Wiring diagram Nos. 4, 10, 12.

Zabulin	12265	No. 16, 2 conductor, lead encased..	.13
Zabulip	12266	No. 18, 2 conductor, lead encased..	.11

TYPE "M."
3 CONDUCTOR LEAD ENCASED, RUBBER INSULATED.

This is the same as the above, only with three conductors.

Zabulir	12267	No. 16, 3 conductor, lead encased..	.17
Zabulis	12268	No. 18, 3 conductor, lead encased..	.14

TYPE "O."
"SAFEGUARD" COMMON RETURN WATER-PROOF INTERCOMMUNICATING CABLE, RUBBER INSULATED.

This wire is for outside use. The conductors are No. 20 with 3-32-inch rubber insulation. The common wires are of larger size depending upon the size of the cable. The conductors are wound concentrically, and are then double taped covered with a heavy weather-proof slicked braid.

		Conductors.	Buttons.	No. Stations.	Diameter.	Per Ft.
Zabulit	12269	8	4	5	7-16	.20
Zabuliv	12270	12	8	9	8-16	.26
Zabuliw	12271	16	12	13	9-16	.32
Zabulix	12272	20	16	17	10-16	.40
Zabuliy	12273	24	20	21	11-16	.50

TYPE "P."

This cable is designed for use in connection with the "Eversure" Automatic telephone, wiring diagrams No. 20 and No. 21 (see index). The conductors are No. 20, 3/32 rubber insulation. The cable is wound with two wrappings of tape and one heavy weather-proof slicked braid over all.

		Pairs.	Buttons.	No. Stations.	Diameter.	
Zabuliz	12274	10	8	9	23-32	.26
Zabulo	12275	14	12	13	27-32	.38
Zabulod	12276	18	16	17	31-32	.48
Zacofuf	25019	22	20	21	1½	.58

ANNUNCIATORS.

Bell Removed.

The "Ross" Annunciator is not merely an invention, it is a growth, and cannot be classed with instruments that have come up in a day. It is the cumulative result of years of experience not only in our own factory, but in the practice of our customers. Some of them have been burned out or drenched with water and saturated with chemicals, while others have been subjected to almost non-interrupted operation and have still worked perfectly.

The "Ross" drop is the perfected result of many years of Annunciator manufacture. It is the only Annunciator drop in which there is no exposed iron in the working parts. In place of the regular armature we employ a solenoid, the plunger of which is made like a gold filled watch case. The process of manufacture is as follows: On each side of a sheet of soft Norway iron there is brazed a sheet of brass, the whole is then rolled out to a thin guage, the brass and iron being reduced together. The plunger is then stamped and drawn up from this brass incased iron, with the result that both the outside and the inside are covered with an unbroken sheet of brass leaving no possibility for rust. The solenoid spool is manufactured by a process which guarantees its exactness, and the whole drop is one which can be depended upon absolutely. There is not a spring in its construction.

Ross Drop.

The needles cannot get loose or turn on the pivots, and always stand absolutely in line. Compare this point with other Annunciators whose needles point in all directions.

Ross Binding Post.

HOTEL ANNUNCIATORS.

Many of the best appointed hotels in the United States and Canada have been equipped with Annunciators using our "Ross" drop. We wish to call special attention to our Annunciphone switch boards, which are equipped with our "Ross" drop. This type of Annunciator is fast taking the place of the return call style, as telephone service is now considered the most desirable method of attending to the calls between room and office in hotels. See Annunciphone pages.

Reverse of Bell Frame

ANNUNCIATORS.

ROSS ANNUNCIATORS.

A Handsome Case, well finished, and made with mortised corners, has been designed for this Annunciator, notwithstanding the low price at which it is sold.

It is a Well-Made Annunciator, built by competent mechanics, and fully up to the high grade of work for which this Company is celebrated.

Absolutely no Adjustment is ever required in this as is in other Annunciators, to compensate for wear or correct the displacement resulting from hard usage.

A Full Quarter Turn of the needle is made upon the drop being released, which facilitates the finding of the indication more easily than in drops using a one-eighth turn.

Positive in Action is this drop. No springs or complicated mechanical arrangements are used.

Will not Shake Down. It is almost impossible under the severest test to "throw" the drop except by an electrical impulse. A feature which will be appreciated by all electricians.

"AVONIAL" HOUSE STYLE CASE.

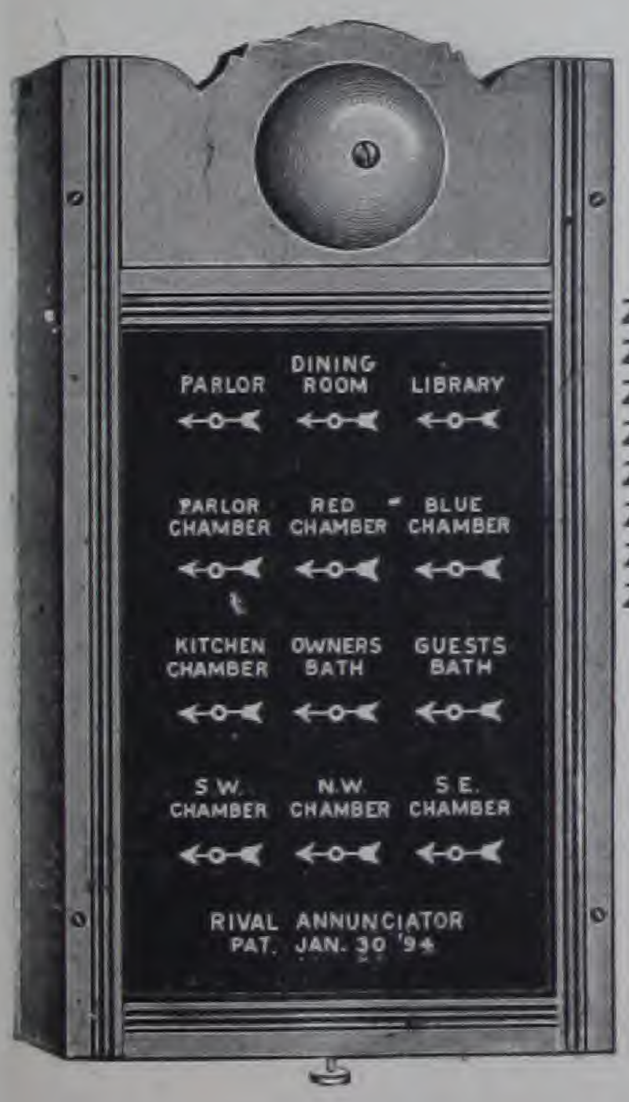
Code Word.	List No.	Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements. of case.	List Price Each.
Zabetiz	50511	3	2	1	8¾ in. wide, 13 in. high.....	$6.00
Zabeto	50512	4	2	2	8¾ in. wide, 13 in. high.....	6.50
Zabetob	50513	6	2	3	8¾ in. wide, 15½ in. high.....	9.00
Zabetod	50514	8	2	4	8¾ in. wide, 17½ in. high.....	11.00
Zabetof	50515	10	2	5	8¾ in. wide, 19¾ in. high.....	13.00
Zabetog	50516	12	3	4	10¾ in. wide, 17½ in. high.....	15.00
Zabetoh	50517	16	4	4	12 in. wide, 17½ in. high.....	19.00
Zabetok	50518	20	4	5	12 in. wide, 19¾ in. high.....	23.00

Furnished in intervening sizes. Made in Light Oak. Special woods to order.

No extra charge for special lettering and your name on the face-plate.

If purchasers do not state kind of wood and marking of annunciators, orders will necessarily be delayed.

"RIVAL" STYLE CASE.



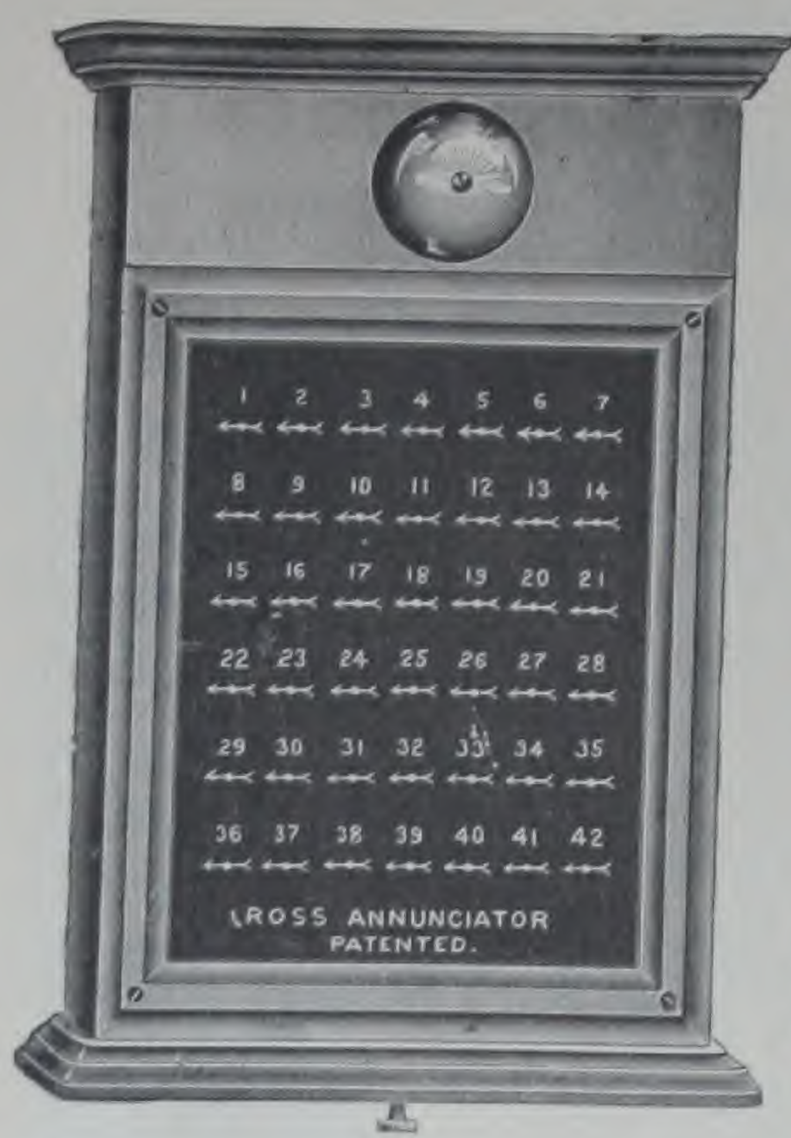
			Arrangement. Across.	Arrangement. Down.	Extreme Measurements. Wide.	Extreme Measurements. High.	
Zabetol	50519	3	2	1	6¾ in.	11¾ in.....	5.00
Zabetom	50520	4	2	2	6¾ in.	11¾ in.....	5.50
Zabeton	50521	6	2	3	6¾ in.	14 in.....	7.00
Zabetop	50522	8	2	4	6¾ in.	16¼ in.....	8.50
Zabetor	50523	10	2	5	6¾ in.	18¾ in.....	10.00
Zabetos	50524	12	3	4	8½ in.	16¼ in.....	12.00
Zabetot	50525	16	4	4	10¼ in.	16¼ in.....	16.00
Zabetov	50526	20	4	5	10¼ in.	18¾ in.....	20.00

Furnished in intervening sizes. We do not make larger sizes, nor elevator style, in the Rival case. Made in Light Oak.

No extra charge for special lettering and your name on face-plate.

ANNUNCIATORS.

ROSS HOTEL ANNUNCIATORS.



Our wide experience in supplying hotel annunciators enables us to fulfill all requirements intelligently and completely.

Some of the essential features are: Reliability in operation, indications plainly visible, and woodwork to correspond.

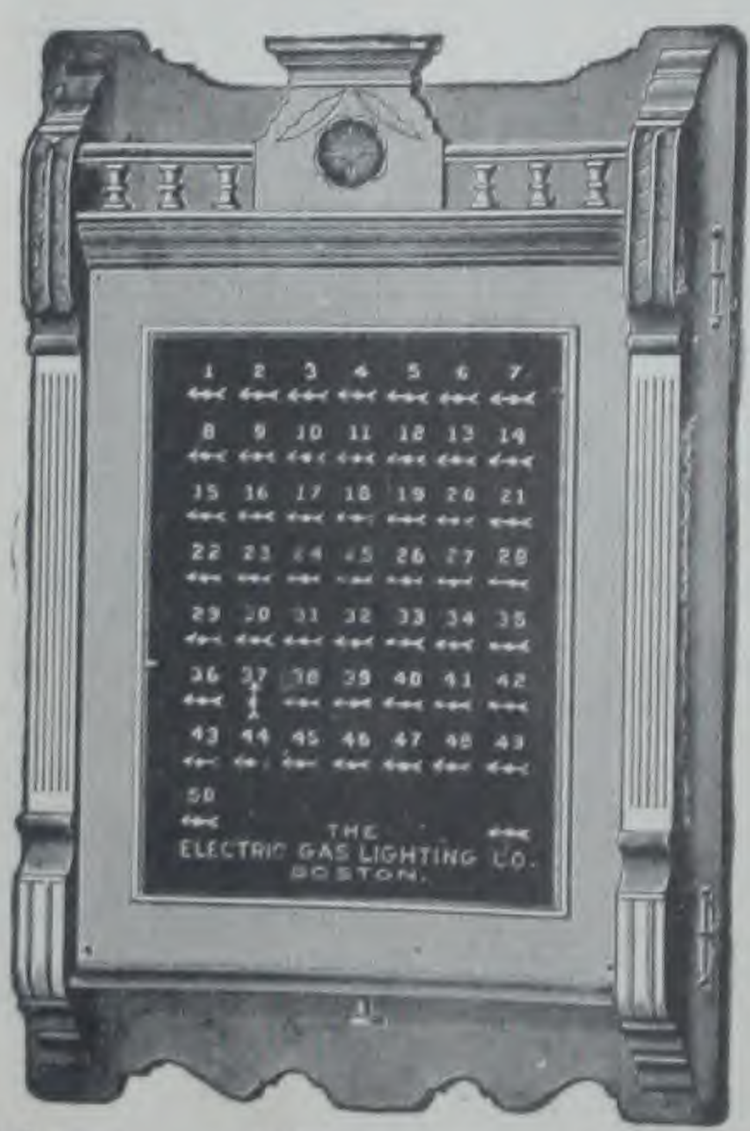
Cases of light oak in the several styles illustrated can be furnished promptly. Special cases in any design or wood made to order.

Skeleton cases furnished when desired.

They are often required when the annunciator is to be installed flush or surrounded by woodwork to match the office or interior finish.

"AVONIAL STYLE."

Code Word.	List No.	Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements of Case.	List Price Each.
Zabeyob	12992	25	5	5	15½ inches wide, 21¾ inches high	**$26.00**
Zabeyod	12993	30	6	5	17¼ inches wide, 21¾ inches high	**31.50**
Zabeyof	12994	36	6	6	17¼ inches wide, 24 inches high	**38.00**
Zabeyog	12995	42	7	6	19 inches wide, 24 inches high	**44.00**
Zabeyoh	12996	49	7	7	19 inches wide, 26¼ inches high	**51.50**
Zabeyok	12997	56	8	7	20¾ inches wide, 26¼ inches high	**58.50**



"DEVONIAL" STYLE.

The front is hung on butts, and the top is made removable, allowing easy access to the binding posts and bell.

Made in light oak. Special woods to order.

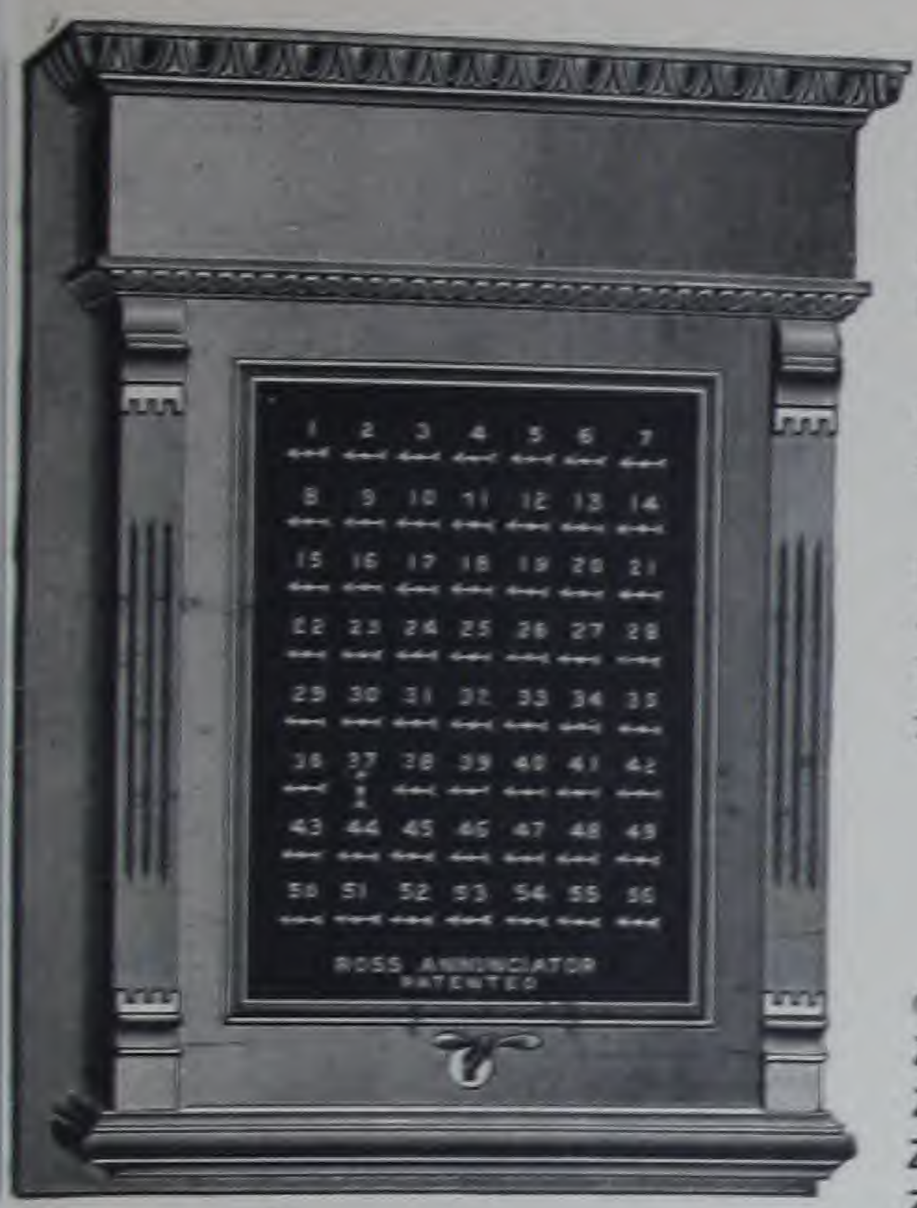
Quotations made on larger sizes.

Furnished in intervening sizes.

While measurements of cases given are practically correct, we should be consulted where instruments are to fill specified spaces.

Zabeyol	12998	20	5	4	18 inches wide, 32¾ inches high	**30.00**
Zabeyom	12999	25	5	5	18 inches wide, 32¾ inches high	**36.00**
Zabeyon	13000	30	6	5	19¾ inches wide, 32¾ inches high	**42.00**
Zabeyop	13001	36	6	6	19¾ inches wide, 35 inches high	**46.00**
Zabeyor	13002	42	7	6	21½ inches wide, 35 inches high	**50.00**
Zabeyos	13005	49	7	7	21½ inches wide, 37¼ inches high	**58.00**
Zabeyot	13006	56	8	7	24¼ inches wide, 37¼ inches high	**66.00**
Zabeyov	13007	64	8	8	24¼ inches wide, 39½ inches high	**76.00**
Zabeyow	13010	81	9	9	26 inches wide, 41¾ inches high	**94.00**
Zabeyox	13011	100	10	10	27¾ inches wide, 44 inches high	**116.00**

ANNUNCIATORS.



No. 45820.

"Baronial" Style in Hotel Size.

BARONIAL STYLE.

This is a rich and substantial annunciator, and one that will harmonize with the furnishings of a fine hotel or business office, and yet can be sold at a lower price than any other instrument that can be considered in the same class.

It can be fitted with an automatic set-back, to 20 drop, and with electric set-backs in as large sizes as desired.

On instrumen|ts of 50 drop and above the set-back mechanism is placed as shown in cut. The cases are hung on heavy butts attached to a back-board, allowing the front to be easily swung open for connecting up or inspection.

Code Word.	List No.	Drops.....	Arrangement. Across..	Arrangement. Down...	Extreme Measurements of Case. Wide. In.	Extreme Measurements of Case. High. In.	List Price Each.
Zuhip	45816	20	4	5	15¾	22¾	$36.00
Zuhir	45817	25	5	5	17½	22¾	40.00
Zabonev	22508	30	6	5	19¼	22¾	48.00
Zabonew	22509	36	6	6	19¼	25	56.00
Zuhis	45818	42	7	6	21	25	62.00
Zuhit	45819	49	7	7	21	27½	72.00
Zuhiv	45920	56	8	7	23¼	28	78.00
Zuhiw	45821	64	8	8	23¼	30¼	88.00
Zuhix	45822	81	9	9	25	33	110.00
Zuhiz	45823	100	10	10	27	35½	136.00

Furnished in intervening sizes.

Made in Oak. Special Woods to order.

No extra charge for Special Lettering, and your name on Face Plate.

No. 45824.

The "Colonial" Style Ross Annunciator.

COLONIAL STYLE.

This is the most elaborate and beautiful Annunciator Case ever designed. The carving is done by hand, and the finish is hand-rubbed, bringing out the grain of the wood, and then highly polished.

It is adapted for installation in the finest banking room, residence, or club-house.

We advocate the use of our automatic or electric setback attachment with this style.

Zuho	45824	20	4	5	18½	25	42.00
Zuhob	45825	25	5	5	20	25	46.00
Zubod	45826	30	6	5	22	25	54.00
Zuhof	45827	36	6	6	22	27	64.00
Zuhog	45828	42	7	6	24	27	72.00
Zuhoh	45829	49	7	7	24	29½	84.00
Zuhok	45830	56	8	7	26½	29½	92.00
Zuhol	45831	64	8	8	26½	32	100.00
Zuhom	45832	81	9	9	29	34	122.00
Zuhon	45833	100	10	10	30½	36½	150.00

Furnished in intervening sizes.

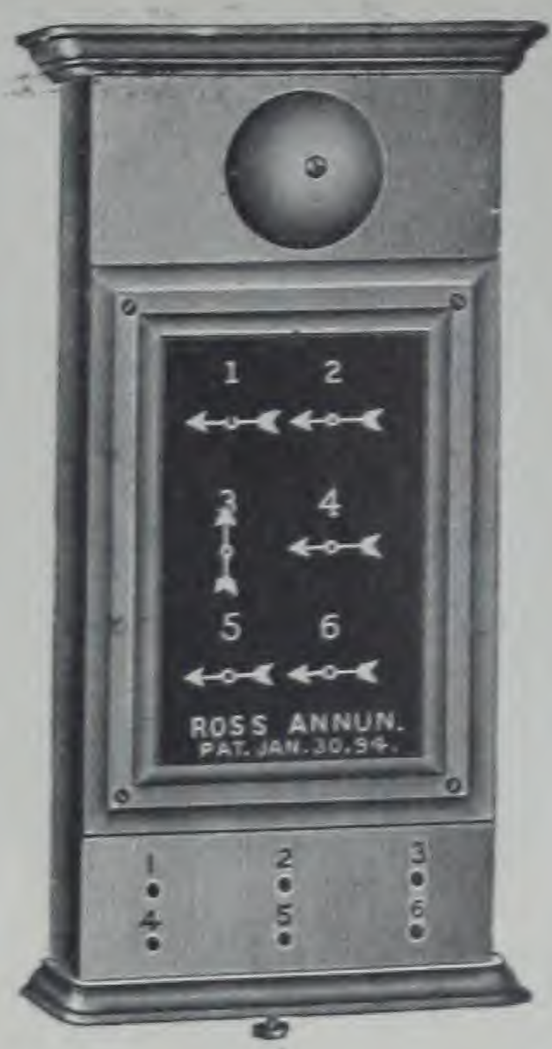
Made in oak. Special woods to order.

No extra charge for special lettering and your name on the face plate.

Consult general Annunciator instructions on last page of Annunciator section of Catalogue.

ANNUNCIATORS.

ROSS RETURN CALL ANNUNCIATORS.



We pay particular attention to this branch of our annunciator business, as great care must be exercised to produce instruments which will stand the test of time and give continued satisfaction.

Our ability to furnish such is evidenced by the large number we have built and the many duplicate orders we have received from customers in all sections of the country.

"AVONIAL" STYLE WITH RETURN CALL.

Arrangement.

Code Word.	List No.	Drops.	Across.	Down.	Extreme Measurements of case.	List Price Each.
Zabezaz	**22947**	6	2	3	8¾ in. wide, 18½ in. high	**$15.00**
Zabeze	**22948**	8	2	4	8¾ in. wide, 20½ in. high	**16.50**
Zabezeb	**22949**	10	2	5	8¾ in. wide, 22¾ in. high	**19.00**
Zabezed	**22950**	12	3	4	10¾ in. wide, 20½ in. high	**21.00**
Zabezef	**22951**	16	4	4	12 in. wide, 20½ in. high	**26.00**
Zabezeg	**22952**	20	4	5	12 in. wide, 25 in. high	**30.00**

Unless otherwise specified, annunciators in the Avonial style case are built with the old style system of return call wiring (one battery wire and two circuit wires), while in the Devonial style case we use the new style of wiring (two battery wires and one circuit wire).

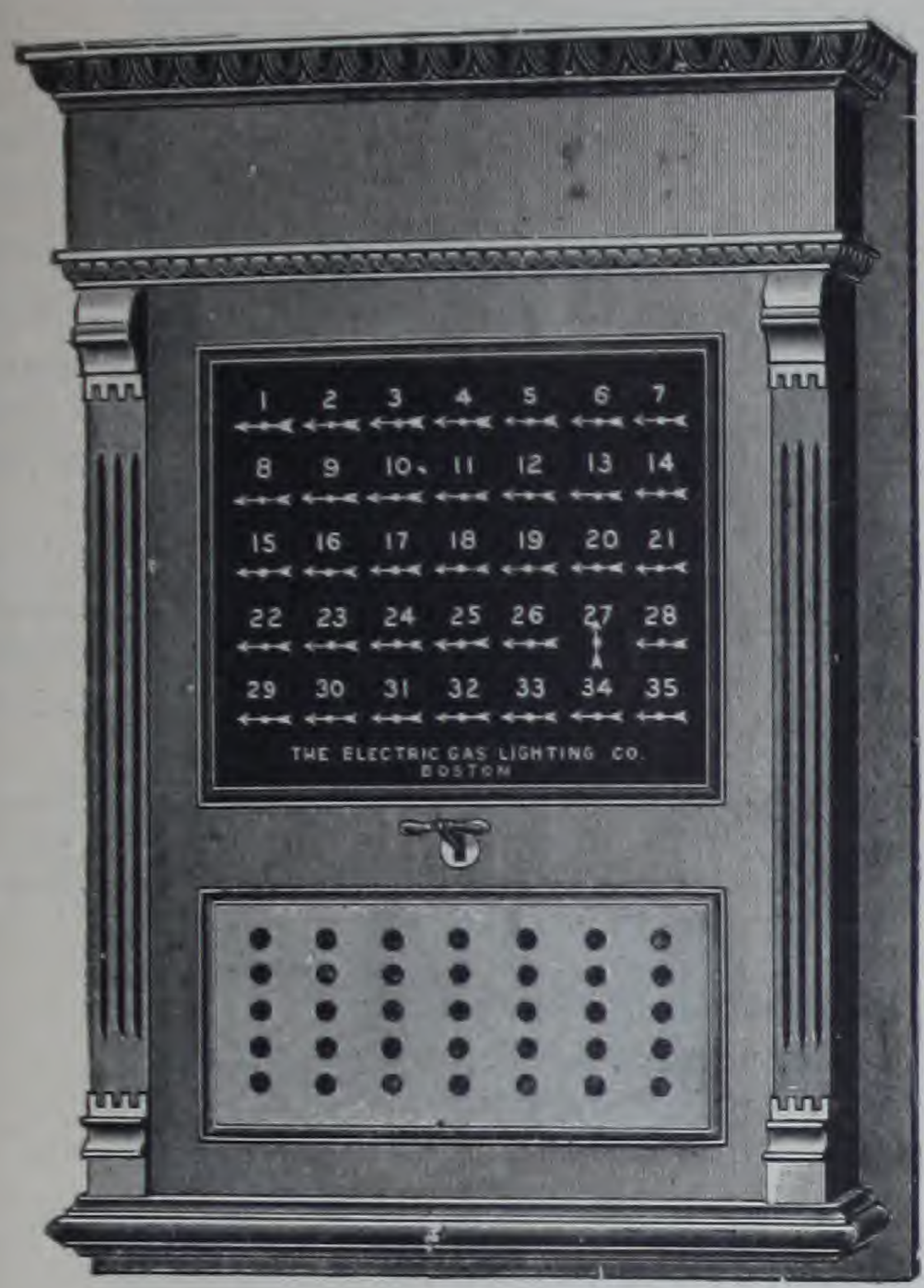
"DEVONIAL" STYLE WITH RETURN CALL.

Made in light oak. Special woods to order.
This style can be fitted with electrical set-back.

Zabezeh	**22953**	24	6	4	19⅛ in. wide, 37⅜ in. high	**54.00**
Zabezek	**22954**	28	7	4	21⅝ in. wide, 37⅜ in. high	**60.00**
Zabezel	**22955**	40	8	5	23⅜ in. wide, 41⅛ in. high	**70.00**
Zabezem	**22956**	54	9	6	25⅞ in. wide, 48 in. high	**90.00**
Zabezen	**22957**	70	10	7	27½ in. wide, 51¾ in. high	**116.00**
Zabezep	**22958**	88	11	8	29¼ in. wide, 55½ in. high	**146.00**
Zabezer	**22959**	96	12	8	31 in. wide, 55½ in. high	**156.00**
Zabezes	**22960**	104	13	8	32¾ in. wide, 55½ in. high	**166.00**

Quotations made on larger sizes. Furnished in intervening sizes. While measurements of cases given are practically correct, we should be consulted where instruments are to fill specified spaces.

ANNUNCIATORS.



No. 45836.

Ross Return-Call Annunciator.

"BARONIAL" STYLE.

As will be noted, this case makes a very handsome return-call instrument.

Assurance is given for return-call use that there will be no future trouble with the return-call pushes.

Prices will be quoted on this style, fitted with electric set-back.

Made in Oak. Special woods to order.

Code Word.	List	Drops.....	Arrangement. Across.	Arrangement. Down..	Extreme Measurements of Case, in. Width.	Extreme Measurements of Case, in. Height.	List Price Each.
Zuhop	**45834**	24	6	4	19¼	x26	**$58.00**
Zuhor	**45835**	28	7	4	21	x26	**64.00**
Zuhos	**45836**	40	8	5	23¼	x32¾	**82.00**
Zuhot	**45837**	54	9	6	25	x38¾	**110.00**
Zuhov	**45838**	70	10	7	27	x43	**140.00**
Zuhow	**45839**	88	11	8	28¾	x47	**166.00**
Zurox	**45840**	96	12	8	30½	x47	**176.00**
Zuhoz	**45841**	104	13	8	32½	x47	**188.00**

COLONIAL STYLE.

This is the most elaborate and beautiful Annunciator case ever designed.

The carving is done by hand, and the finish is hand-rubbed, bringing out the grain of the wood, and then highly polished.

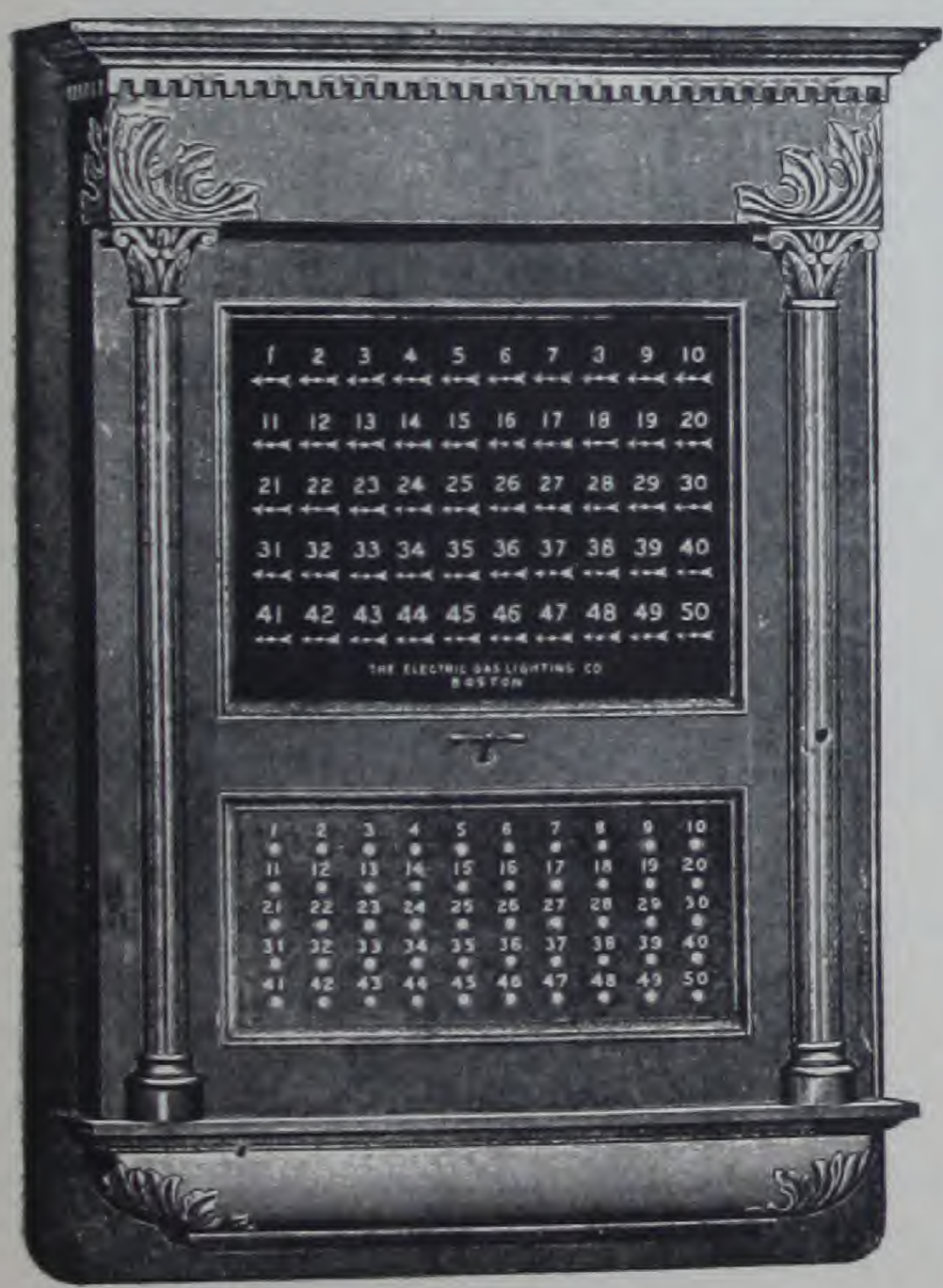
It is adapted for installation in the finest banking room, residences or club house.

We advocate the use of our automatic or electric set-back attachment with this style.

Made in Oak. Special woods to order.

Prices will be quoted on this style, fitted with electric set-back.

Zuhu	**45842**	24	6	4	21¼ x29½	**68.00**
Zuhub	**45843**	28	7	4	23¼ x29½	**76.00**
Zuhud	**45844**	40	8	5	25¾ x33¼	**96.00**
Zuhuf	**45845**	54	9	6	28 x40	**124.00**
Zuhug	**45846**	70	10	7	29¾ x43¾	**152.00**
Zuhuh	**45847**	88	11	8	31½ x48	**184.00**
Zuhuk	**45848**	96	12	8	33¼ x48	**192.00**
Zuhul	**45849**	104	13	8	35 x48	**208.00**



No. 45845.

Consult General Annunciator Instructions on last page of Annunciator section of catalogue.

No. 45732.

STYLE "A."

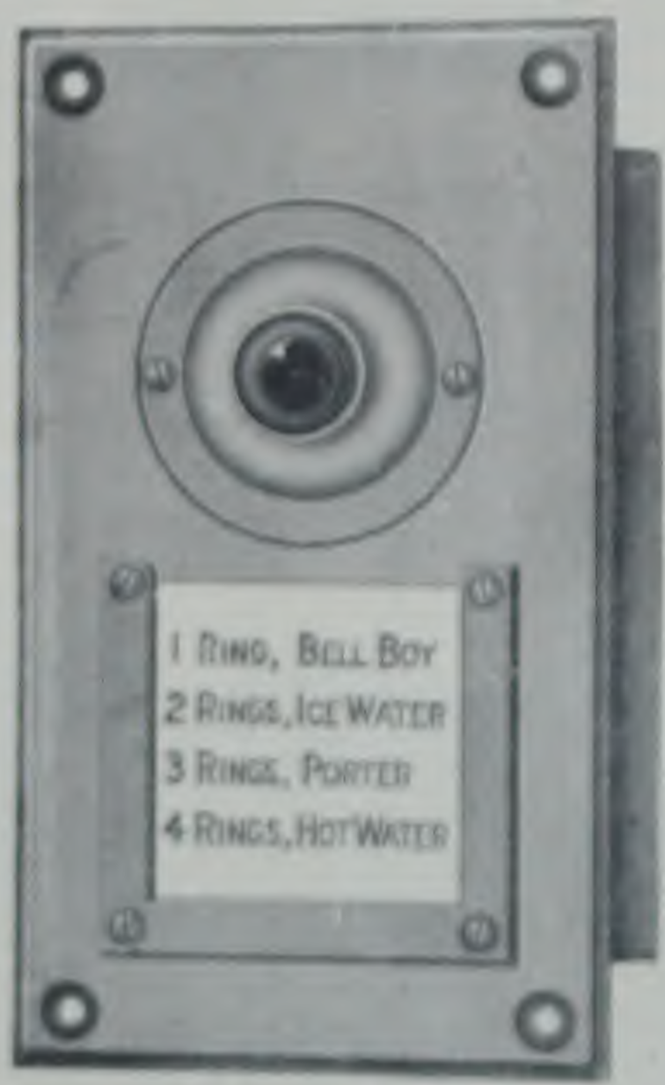
COMBINATION BELL AND PUSH.

Size 2⅞x6¾ in.

This is the smallest and handsomest metal Combination Bell and Push-Button manufactured. The size is 6¾x2⅞. Still, within this limited space is placed a double-adjusted bell made with platinum points, which can be adjusted without removing it from the wall. The binding posts, of which there are three, are made with particular reference to obtaining security from loosening and the wire slipping from under the connections. The posts are fastened to the base with two screws rivited.

The 3-point push in this bell is made in such a manner that the spring used to make the necessary closed contact will not become "set" and cause the bell to refuse to ring, as is liable to occur when care is not used in regard to this important detail. Do not fail to order this bell if you want the best one on the market.

Code Word.	List No.		List Price, Each.
Zugix	45732		$1.50



No. 45733.

STYLE "B" FLUSH.

COMBINATION BELL AND PUSH.

Size of Face-Plate, 3½x5⅞ in.

Size of recessed part, 2½x4¾x2 3-16 in. deep.

One of our new specialties, and it contains the same mechanism as the style above described.

This device becomes almost a necessity where a combination bell and push is required to be placed in close proximity to a flush electric light switch, and it is desired to preserve uniformity.

Blank call cards are furnished, enabling the same to be printed to meet specifications of the hotel manager.

We are the only manufacturers of a flush combination bell and push button.

Zugiz	45733		2.00

No. 45734.

THREE-POINT RETURN-CALL PUSH.

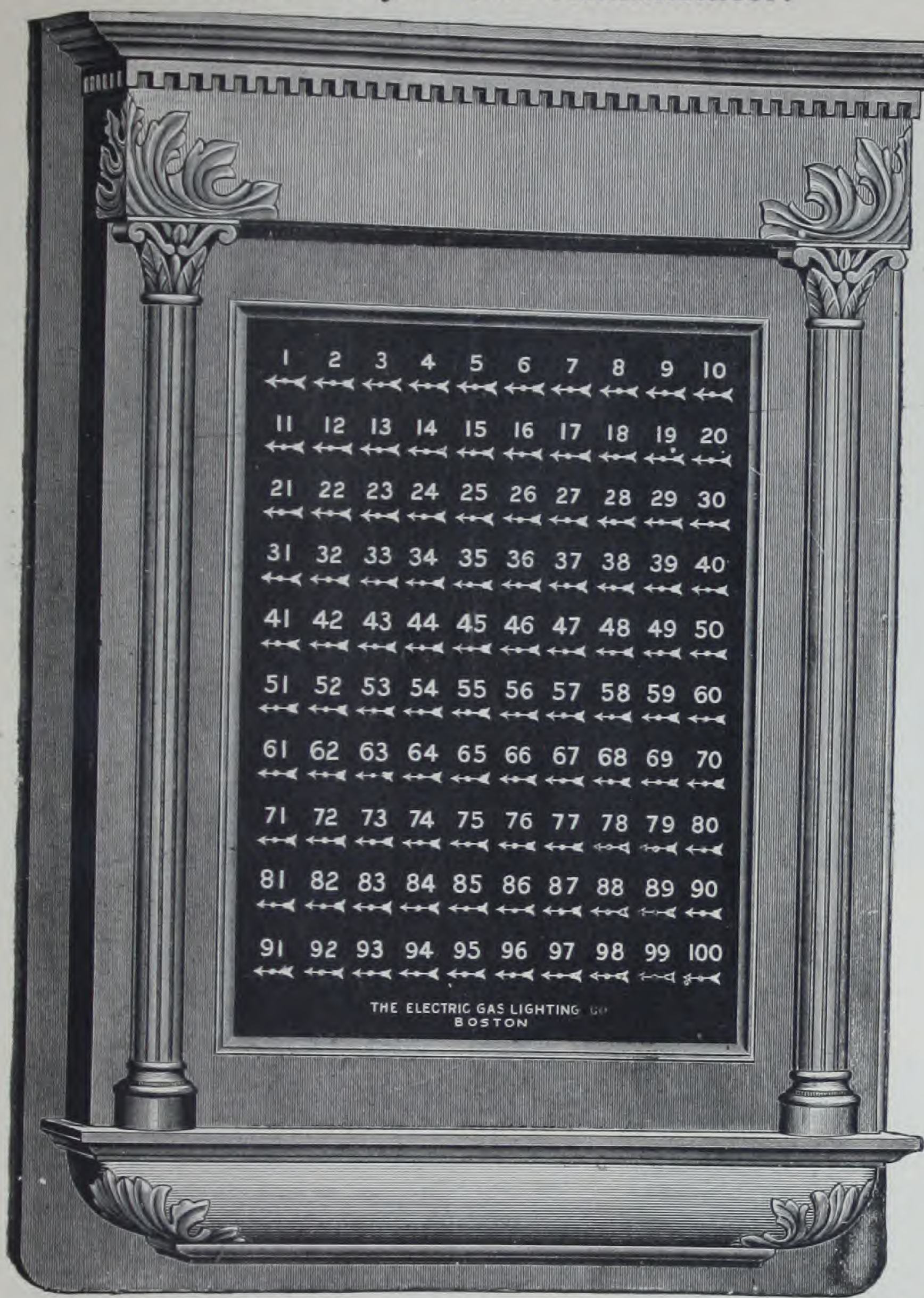
Size 2¼ in.

A well-made and polished wood push, fitted with springs which will cause no trouble from setting, as we use porcelain centres.

Zugo	45734		20

ANNUNCIATORS.

"Colonial" Style Ross Annunciator.



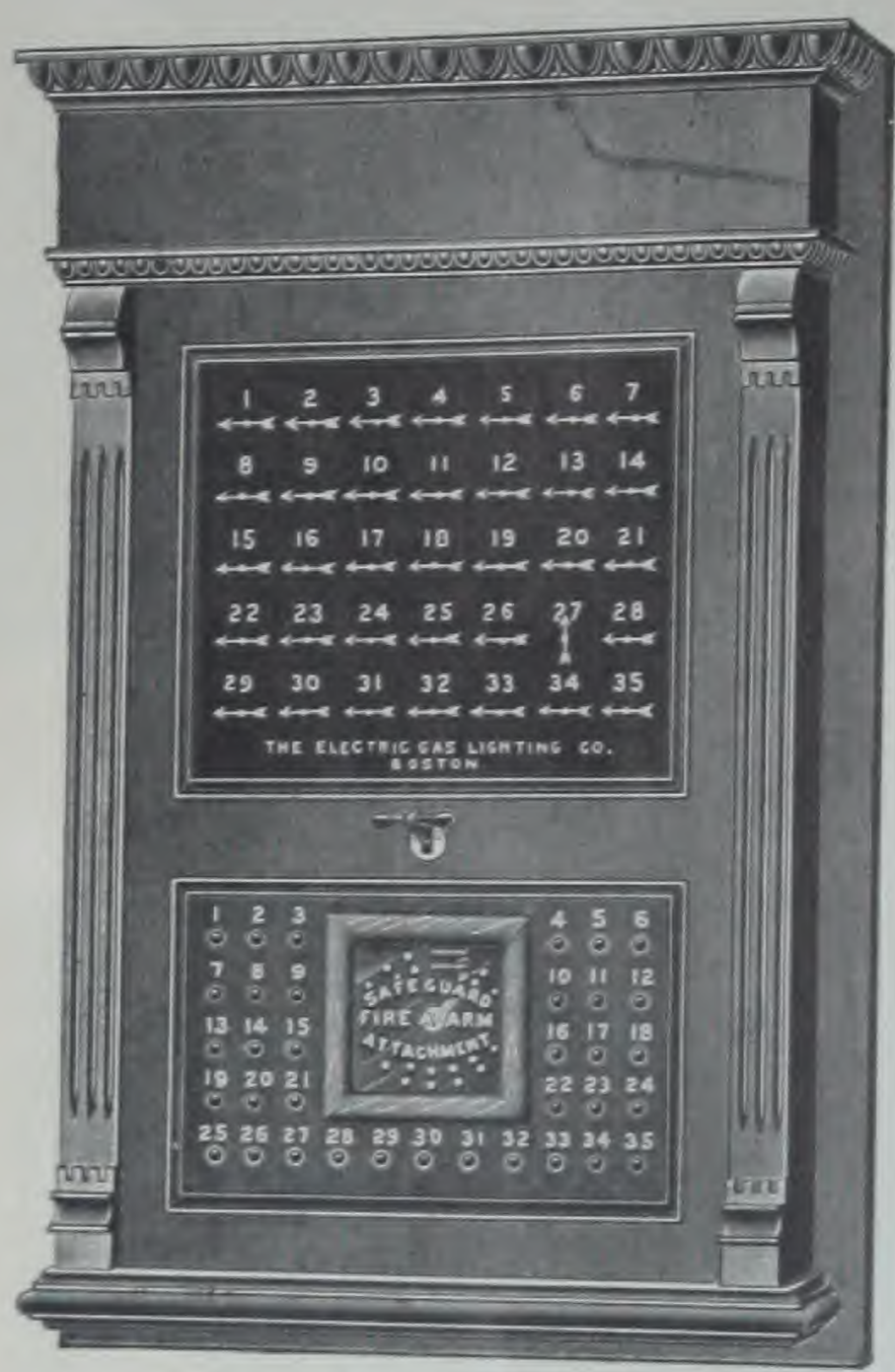
The designs on this style are genuine hand-carved, cut from the body of the case, which is hand-rubbed and highly polished, bringing out the grain of the wood. Architects and purchasers of this style have stated that it is the handsomest Annunciator case ever produced.

If desired, it can be fitted with an electric set-back by which the needles are replaced by pressing a push button placed at any desired distance from the Annunciator.

The list prices do not include this attachment, but is for the regular mechanical set-back instrument.

Consult general Annunciator instructions on last pages of Annunciator Section of Catalogue.

THE "SAFEGUARD" AUTOMATIC FIRE ALARM SYSTEM.



Annunciator.

Annunciator.

Star Gong.

This new and simple system of awakening hotel guests in case of fire has prominent advantages over systems now in vogue. We term it the Safeguard system for the following reasons:

FIRST. It will awaken the guest who has become so accustomed to the ordinary room bell that he would not hear it in case of a fire.

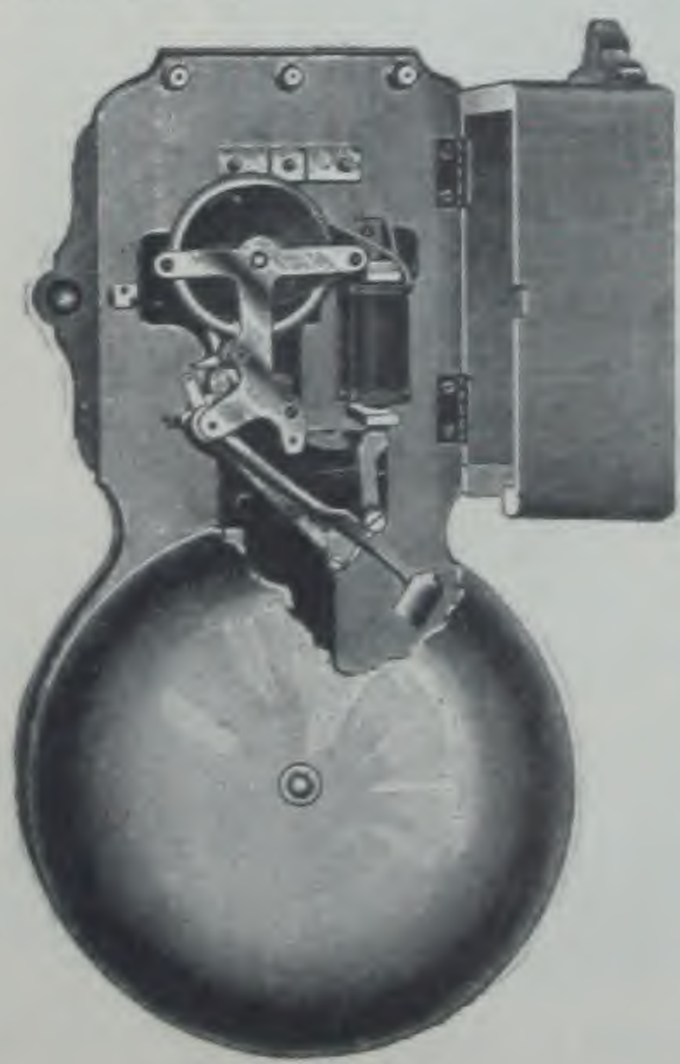
SECOND. Its operation does not depend on the regular set of batteries used with the Annunciator.

THIRD, and most important of all. In our improved system, should the wires connecting the room bells with the Annunciator be burned off or become broken after the Annunciator mechanism has started to operate, our patented "Star" Electro-Mechanical Fire Alarm Gong will continue to ring until run down.

No other system embodies these important features.

The operation of our Safeguard system is as follows:

Upon notification of fire, the clerk or such other person as may be designated pulls out a plug located back of the small door shown in the illustration, which releases a powerful spring, causing a contact arm attached to same to throw into circuit our patented "Star" Electro-Mechanical Fire Alarm Gongs located in the different halls, which strike from 300 to 400 powerful blows without stopping, emitting tones which reverberate through the halls, and unmistakably mean that a fire is in progress. Immediately after closing the contact, which serves to throw into circuit the fire alarm gongs, the arm revolves, automatically closing the circuit between the Annunciator and the return-call bells in the room, ringing them until the clockwork runs down.



Star Gong.

Our manner of manufacturing this portion of the instrument, and the fact that we automatically combine with the set of batteries which operate the Annunciator a second set which have been reserved for fire purposes enable us to ring more room bells and ring them longer than any other automatic fire-alarm system.

In comparing our system with those of other manufacturers, we desire to call particular attention to the fact that it will, without fail,

AWAKEN THE SOUNDEST SLEEPER,

who is the one in need of the most effective alarm in case of fire, the average person being easily awakened by ordinary methods. Our system also

POSITIVELY INSURES AN ALARM.

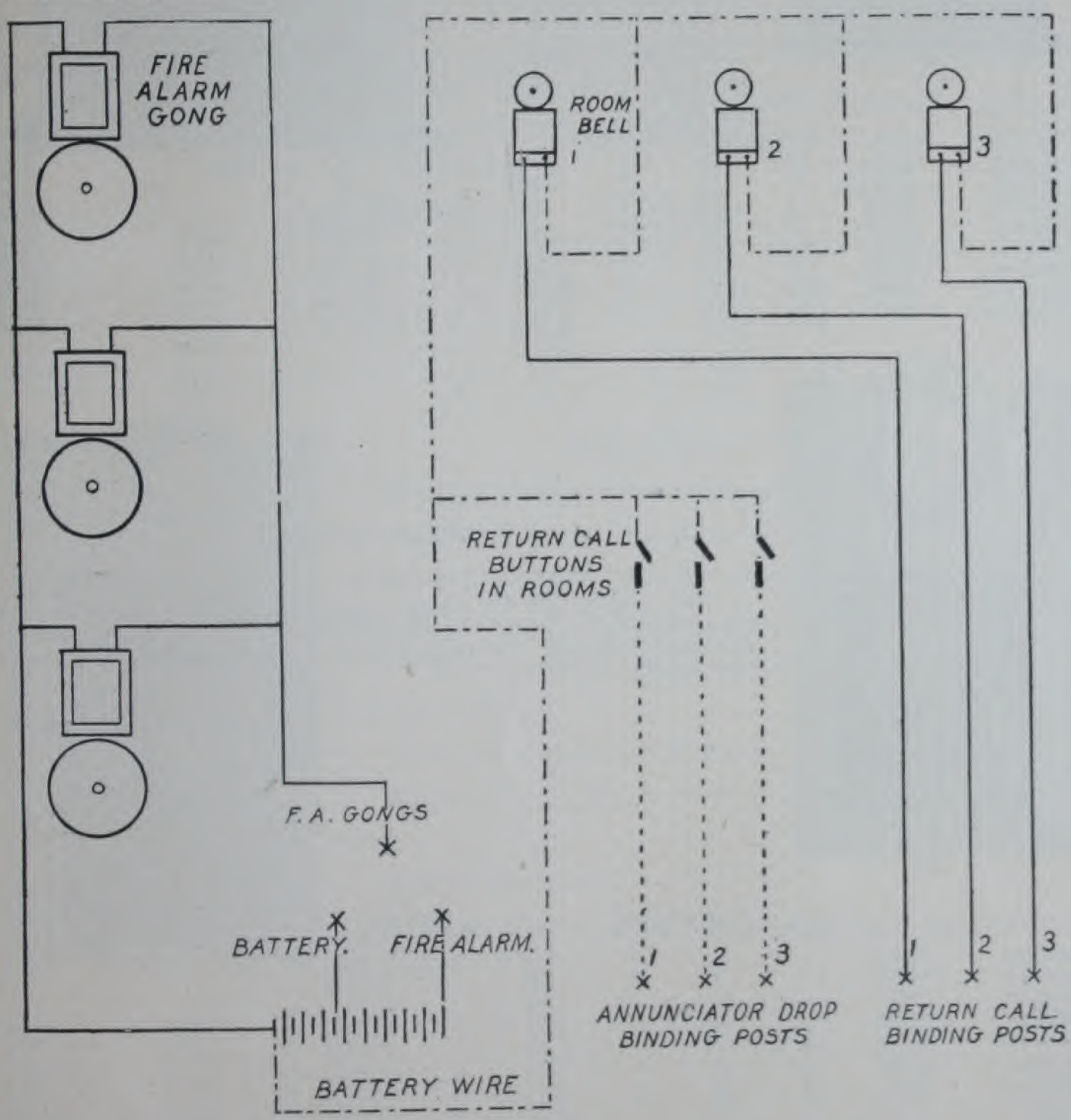
As explained, by the use of our patented Fire Alarm Gongs we insure an alarm being given, whereas in systems which use room bells only, should the wires connecting them with the Annunciator burn off or become broken, the system would become inoperative.

Quotations made upon application.

"SAFEGUARD" AUTOMATIC FIRE ALARM ATTACHMENT.

WIRING DIAGRAM NO. 6.

The diagram illustrated below shows the simple manner of wiring our "Safeguard" Automatic Fire Alarm Attachment. It should be noted that one battery and two circuit wires are used, and this method of wiring should be always adopted when the "Safeguard" Automatic Fire Alarm attachment is used, otherwise we would have to make up a special mechanism and would be obliged to charge considerable more than the regular extra price for the "Safeguard" feature. If Fire Alarm gongs are to be used in the hall the additional wires, as shown on the diagram, must be run. Our combination bell and push buttons can be used in the rooms, and it would be necessary to mention in every case the system of wiring so that the proper number of contacts would be furnished in the push button. Before ordering Return Call Annunciators it will be well to read over the advantages of using instead the Annunciphone, which can also be equipped with our "Safeguard" attachment.



NOTE.—Connections designated by a cross are all made at annunciator.

ANNUNCIATORS

AUTOMATIC SET-BACK ANNUNCIATORS.

"PERFECT" STYLE.

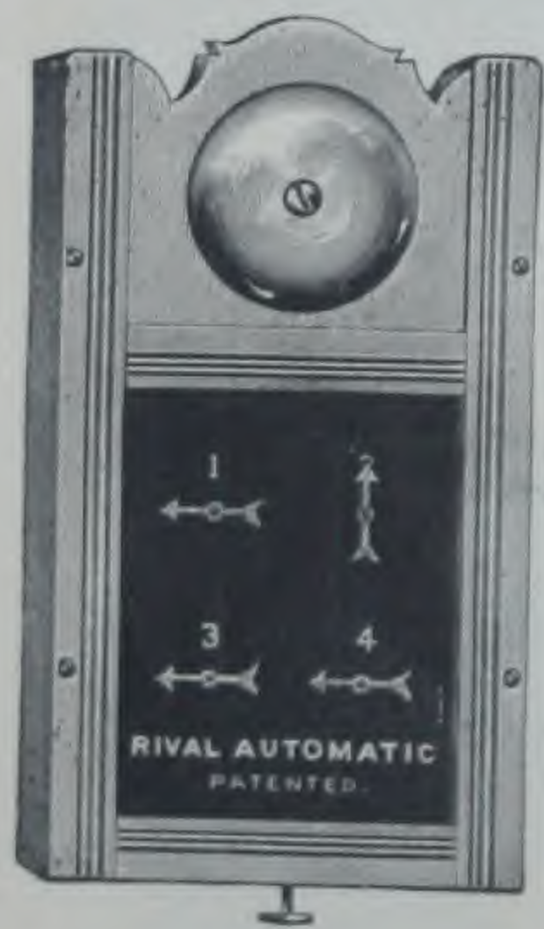
Self-Setting Annunciators do not require the attention of servants or attendants to re-set the needles after each call is indicated and answered. The re-setting is accomplished by means of a device which operates automatically. It is therefore impossible for the attendant to mistake the location of a new call because two or more needles have been allowed to remain indicating. This frequently occurs when the ordinary annunciators are used, as servants are very liable to forget or neglect to re-set the indicating needle as soon as the call is answered.

The sale of the "Perfect" and "Rival" Automatic Set-Back Annunciators is steadily increasing, as they are the only Self-Setting Annunciators that will indicate properly should two or more calls occur simultaneously. Another feature of these instruments is the addition of the mechanical re-set, which is always furnished unless otherwise ordered.

The "Set-Back" mechanism is simple in construction and perfect in operation.

Cabinet work of the "Perfect" style is the same fine finish and high grade as the regular "House" style.

Code Word.	List No.	Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements.	List Price. Each.
Zabeveb	50567	3	2	1	8¾ in. wide x 13 in. high	$7.50
Zabeved	50568	4	2	2	8¾ " " x 13 " "	8.00
Zabevef	50569	6	2	3	8¾ " " x 15½ " "	10.50
Zabeveg	50570	8	2	4	8¾ " " x 17½ " "	12.50
Zabeveh	50571	10	2	5	8¾ " " x 19¾ " "	14.50
Zabevek	50572	12	3	4	10¾ " " x 17½ " "	16.50
Zabevel	50573	16	4	4	12 " " x 17½ " "	20.50
Zabevem	50574	20	4	5	12 " " x 19¾ " "	24.50



"RIVAL" STYLE.

The Automatic Set-Back mechanism is the same in the Rival Automatic as in the Perfect Automatic, described above. The case, although not ornamental, is of good proportions and well made.

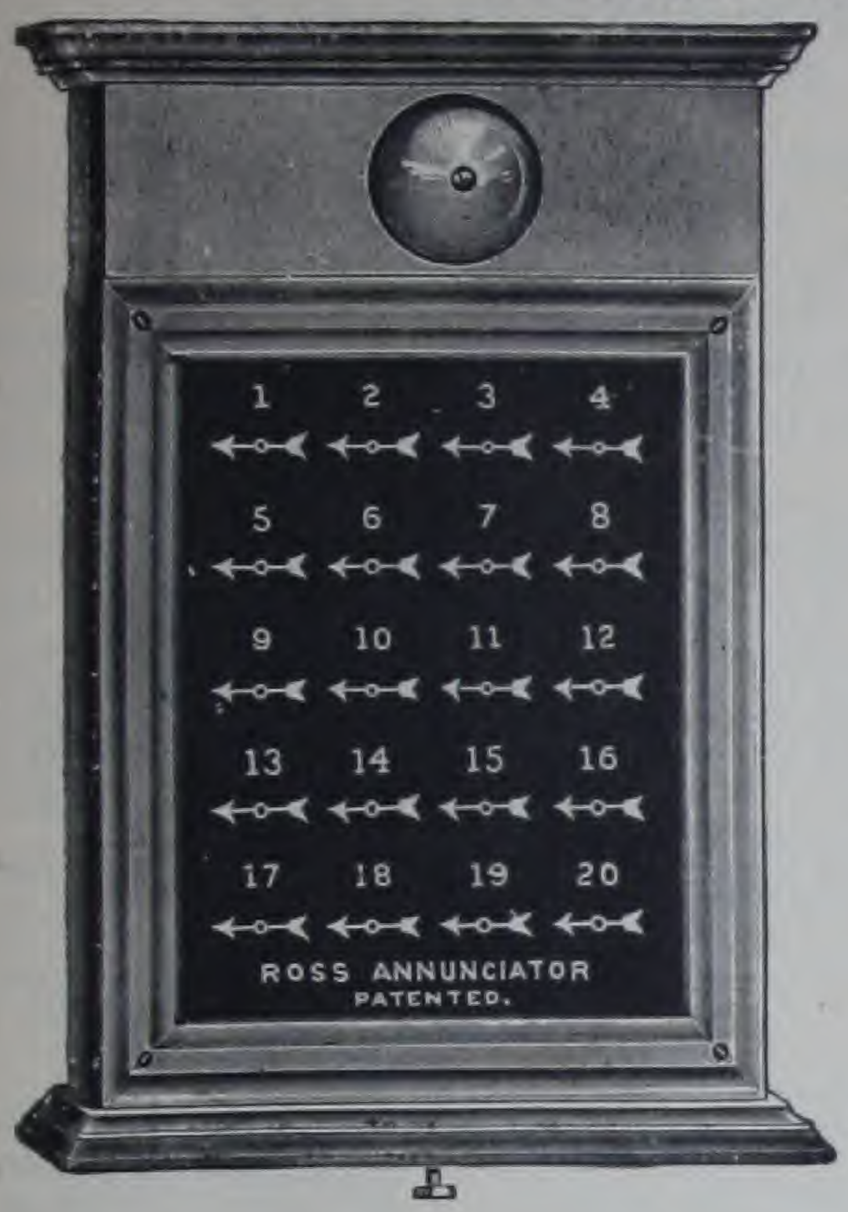
		Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements.	
Zabeven	50575	3	2	1	6¾ in. wide x 11¾ in. high	$6.50
Zabevep	50576	4	2	2	6¾ " " x 11¾ " "	7.00
Zabever	50577	6	2	3	6¾ " " x 14 " "	8.50
Zabeves	50578	8	2	4	6¾ " " x 16¼ " "	10.00
Zabevet	50579	10	2	5	6¾ " " x 18¾ " "	11.50
Zabevev	50580	12	3	4	8½ " " x 16¼ " "	13.50
Zabevew	50581	16	4	4	10¼ " " x 16¼ " "	17.50
Zabevex	50582	20	4	5	10¼ " " x 18¾ " "	21.50

Both above styles furnished in intervening sizes and in light oak. Special woods to order.

No extra charge for special lettering and your name on face-plate.

ANNUNCIATORS

ELECTRIC SET-BACK ANNUNCIATORS.



"ROSS" STYLE.

The Electric Set-Back Annunciator is an instrument which, while it is like the Automatic, inasmuch as it is not necessary to operate the mechanical set-back to reset the drops, a press button must be pushed to accomplish this result.

Where it is required that the needles, as they register one after the other, shall remain pointing until such a time as it is desired to reset them all, by pressing a button at a greater or less distance from the instrument, the Electric Set-Back is preferable to the Automatic style.

We place the mechanical set-back on this style as an additional convenience.

Furnished in intervening sizes.

Made in light oak. Special woods to order.

No extra charge for special lettering and your name on the face-plate.

Code Word.	List No.	Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements.	List Price. Each.
Zabevez	50583	3	2	1	8¾ in. wide, 13 in. high	$7.50
Zabevi	50584	4	2	2	8¾ " " 13 " "	8.00
Zabevib	50585	6	2	3	8¾ " " 15½ " "	10.50
Zabevid	50586	8	2	4	8¾ " " 17½ " "	12.50
Zabevif	50587	10	2	5	8¾ " " 19¾ " "	14.50
Zabevig	50588	12	3	4	10¾ " " 17½ " "	16.50
Zabevih	50589	16	4	4	12 " " 17½ " "	20.50
Zabevik	50590	20	4	5	12 " " 19¾ " "	24.50

THE "RIVAL" STYLE.

The mechanism of this instrument is the same as in the style described above. The case, however, is less elaborate in design, and it is not a genuine hand-rubbed finish, which admits of its being sold at a lower price.

We place the mechanical set-back on this style as an additional convenience.

Furnished in intervening sizes.

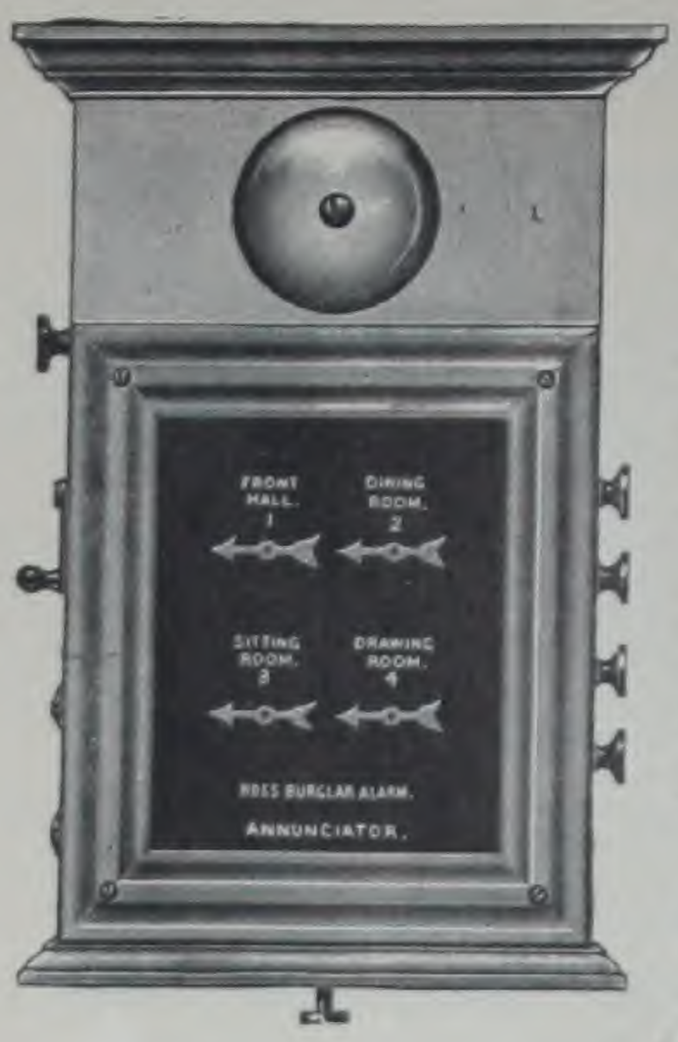
We do not make larger sizes, or elevator style, in the Rival case.

Made in light oak.

No extra charge for special lettering and your name or face-plate.

Zabevil	50591	3	2	1	6¾ in. wide, 11¾ in. high	$6.50
Zabevim	50592	4	2	2	6¾ " " 11¾ " "	7.00
Zabevin	50593	6	2	3	6¾ " " 14 " "	8.50
Zabevip	50594	8	2	4	6¾ " " 16¼ " "	10.00
Zabevir	50595	10	2	5	6¾ " " 18¾ " "	11.50
Zabevis	50596	12	3	4	8½ " " 16¼ " "	13.50
Zabevit	50597	16	4	4	10¼ " " 16¼ " "	17.50
Zabeviv	50598	20	4	5	10¼ " " 18¾ " "	21.50

ANNUNCIATORS



THE ROSS BURGLAR-ALARM ANNUNCIATOR.

Every desirable feature will be found in this instrument.

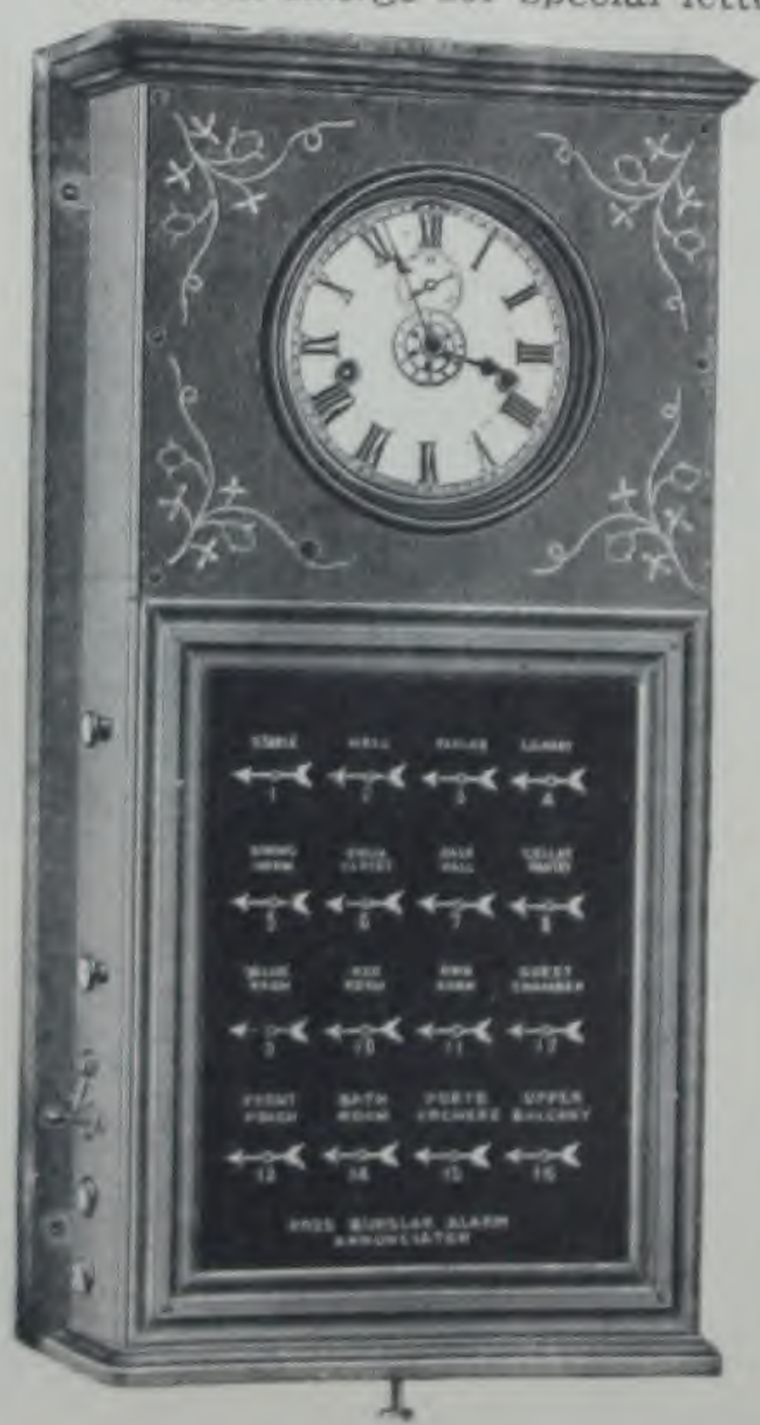
A prominent visual indication is given both for the battery and open window tests, which is an advantage over instruments in which the absence of any indication is taken as evidence that the doors and windows are all properly closed.

In making battery test, the bell on the Annunciator is not rung, which is objectionable when this test is to be made after the occupants have retired. The visual indication in making the battery test shows conclusively that there is the requisite amount of strength in the battery.

We send a printed linen tag giving instructions for the householder, enabling him to thoroughly understand the working of these instruments and how to make the necessary tests.

Code Word.	List No.	Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements of Case.	List Price, Each.
Zabetur	50541	4	2	2	8¾ in. wide x 13 in. high	$20.00
Zabetus	50542	6	2	3	8¾ in. wide x 15½ in. wide	24.00
Zabetut	50543	8	2	4	8¾ in. wide x 17½ in. high	28.00
Zabetuv	50544	10	2	5	8¾ in. wide x 19¾ in. high	32.00
Zabetuw	50545	12	3	4	10¾ in. wide x 17½ in. high	36.00
Zabetux	50546	16	4	4	12 in. wide x 17½ in. high	40.00
Zabetuz	50547	20	4	5	12 in. wide x 19¾ in. high	44.00

Special quotations furnished on Colonial Style case.
Furnished in intervening sizes.
Made in light oak. Special woods to order.
No extra charge for special lettering and your name on the face-plate.



SPECIAL CLOCK ATTACHMENTS.

STYLE A switches Annunciator out of circuit at any desired hour by means of attachment affixed to an eight-day clock movement.

Zabeva 50548 ..... 20.00

STYLE B consists of the above and a means of ringing bell in servants' room when a window or door is opened during the night.

Zabevab 50549 ..... 22.00

We can also supply devices in connection with our Burglar-Alarm Annunciators for lighting Automatic Burners and Incandescent Lamps, when the Burglar-Alarm system is operated by the opening of a door or window. Also attachments for ringing calls in servants' rooms, and other special requirements, quotations upon which we shall be pleased to supply.

ANNUNCIATORS.

"DESK" STYLE.

No. 12224.

This form of Annunciator is very desirable for large offices where a number of individual instruments are used. As will be noticed, the instrument is fastened to the table, and re-set by a lever at the side. This instrument is fitted with a bell, unless it is stated that a Buzzer is desired.

Code Word.	List No.	Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements. Wide.	Extreme Measurements. High.	Price, List Each.
Zabulal	12223	4	2	2	8¾ in.	x 10 in.	$10.00
Zabulam	12224	6	2	3	8¾ in.	x 12½ in.	13.00
Zabulan	12225	9	3	3	10¾ in.	x 12½ in.	16.00
Zabulap	12226	12	3	4	10¾ in.	x 14½ in.	19.00

Furnished in intervening sizes. Made in light oak. Special woods to order. No extra charge for special lettering and your name on the face-plate.

"WHITE FACE" ANNUNCIATOR.

We are called upon from time to time to furnish Annunciators having a face-plate made in white, so that indications will show up clearly and can be read for considerable distance. In such case we have always supplied instruments with face-plate painted in white, but as it is exceedingly difficult to make the paint stick to the plate and not fall off after same has become dried, we have decided in the future to furnish an instrument supplied with a sheet of celluloid, which gives a very neat appearance and keeps in better condition for a greater length of time.

This instrument, equipped with electrical setback, can be placed high up on the wall, so that it can be readily seen for a greater distance than the regular black face-plate, and can be re-set by means of a push button located at some convenient point.

There will be but a slight advance in cost over the regular styles, price depending on the size of the sheet of celluloid we would have to furnish.

Prices quoted on application.

"FLUSH" STYLE.

No. 12227.

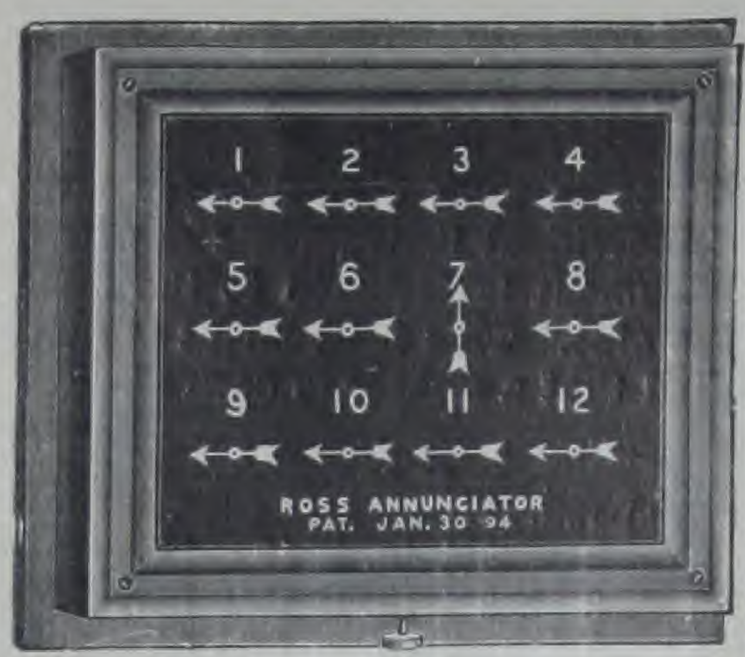
The frame is the only portion which protrudes from the wall in our flush case, and as the instrument is made either electric re-set from a conveniently located push button or automatic re-set by the succeeding call it can be placed at any desired height from the floor. The case, as will be noticed, is very handsome in design, and is also dust-proofed. A Monitor Bell is used which admits of adjustment without the necessity of removing the instrument from the recess in the wall. In ordering state whether electric or automatic setback is desired.

					Size of Recessed Frame. Deep.	Size of Recessed Frame. Wide.	Size of Recessed Frame. High.	
Zabular	12227	4	2	2	3 in.	7¾ in.	8½ in.	10.00
Zabulas	12228	6	2	3	3 in.	7¾ in.	11¾ in.	13.00
Zabulat	12229	8	2	4	3 in.	7¾ in.	14 in.	16.00
Zabulav	12230	12	3	4	3 in.	9 in.	14 in.	19.50
Zabulaw	12231	16	4	4	3 in.	10¾ in.	14 in.	22.00
Zabulax	12232	20	4	5	3 inch	10¾ in.	18¾ in.	25.00

Larger sizes to order. Furnished in intervening sizes. Made in light oak. Special woods to order. No extra charge for special lettering and your name on the face-plate.

ANNUNCIATORS.

ROSS MARINE STYLE "A."



No. 11967.

Annunciators for marine service are now being constructed, using an auxiliary bell. This admits of quick adjustment of the latter, should heavy jars or other causes derange the mechanism. The case of this instrument is made with special rubber gaskets to keep out dampness.

Code Word.	List No.	Arrangement. Drops.	Across.	Down.	Extreme Measurements of Case. Inches Wide.	Inches High.	List Price, Each.
Zabugil	**11964**	4	2	2	8¾	9	**$12.00**
Zabugim	**11965**	6	3	2	10½	9	**14.00**
Zabugin	**11966**	8	4	2	12¼	9	**16.00**
Zabugip	**11967**	12	4	3	12¼	11¼	**20.00**
Zabugir	**11968**	16	4	4	12¼	13½	**24.00**
Zabugis	**11969**	20	5	4	14	13½	**28.00**

List prices do not include Bells. If wanted, so state.

Marine cases finished in mahogany, unless otherwise specified.

ROSS MARINE STYLE "B."

No. 11975.

Frame 2 in. Stock ⅞ in. Thick. Finish Mahogany.

This case is similar in appearance to the one explained below, but has a narrower frame and is built of lighter stock. It is suitable for instruments up to twenty drop and gives a much neater appearance in the small sizes than the massive case. Supplied without rubber gasket when furnished for other than marine use.

Zabugit	**11970**	4	2	2	18¾	10	**16.00**
Zabugiv	**11971**	6	3	2	10½	10	**18.00**
Zabugiw	**11972**	8	4	2	12¼	10	**20.00**
Zabugix	**11973**	10	5	2	14	10	**22.50**
Zabugiz	**11974**	12	6	2	15¾	10	**25.00**
Zabugo	**11975**	15	5	3	14	12¼	**28.00**
Zabugob	**11976**	18	6	3	15¾	12¼	**31.00**
Zabugoc	**11977**	20	5	4	14	14½	**34.00**

List prices do not include Bells. If wanted, so state.

Marine cases finished in mahogany, unless otherwise specified.

ROSS MARINE STYLE "C."

No. 11985.

Frame 3 in. Stock 1¾ in. Thick. Finish Mahogany.

This style of case, which we originated several years ago, has become so popular with steamship companies that our competitors find it desirable to copy our design. The mechanism is mounted in a solid and massive cabinet which is carried on hinges, and is equipped with dowel pins and lugs fastened at the back board. A rubber gasket is used to prevent the entrance of moisture. The instrument is well finished, and as there are no recesses in which dust can collect, it always retains its handsome appearance. There is no danger of injury to passengers if they should come in contact with the edges, owing to the lurching of the ship, as was the case with the old, square cornered style. The illustration shows the method of cabling to back board and the ease of opening the case when necessary to test out the circuit. We generally supply this instrument in mahogany finish, but other finishes can be furnished if desired.

Zabugod	**11978**	21	7	3	21½	16¼	**38.00**
Zabugof	**11979**	28	7	4	21½	18½	**46.00**
Zabugog	**11980**	40	8	5	23¼	20¾	**60.00**
Zabugoh	**11981**	50	10	5	26¾	20¾	**74.00**
Zabugok	**11982**	60	12	5	30¼	20¾	**84.00**
Zabugol	**11983**	72	12	6	30¼	23	**100.00**
Zabugom	**11984**	91	13	7	32	25¼	**126.00**
Zabugon	**11985**	104	13	8	32	27½	**133.00**

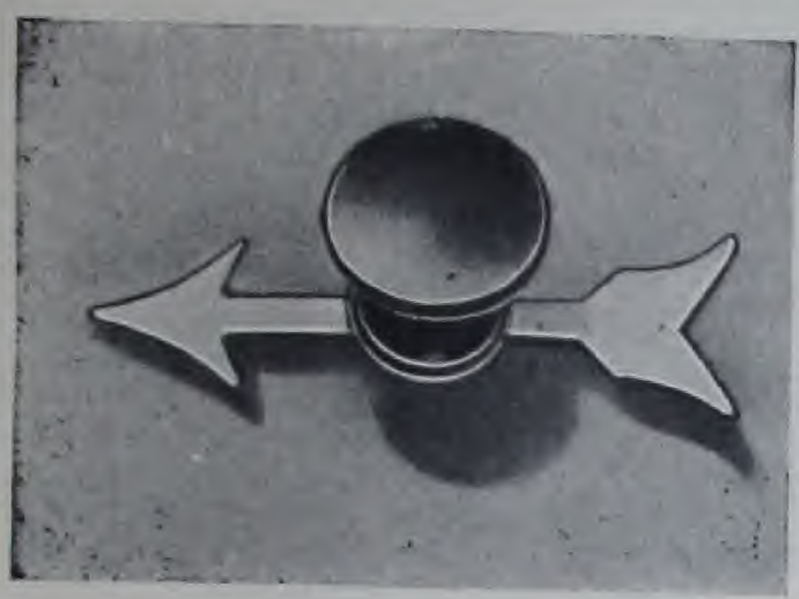
Prices do not include Bells. If wanted, so state.

Marine Cases finished in mahogany unless otherwise specified.

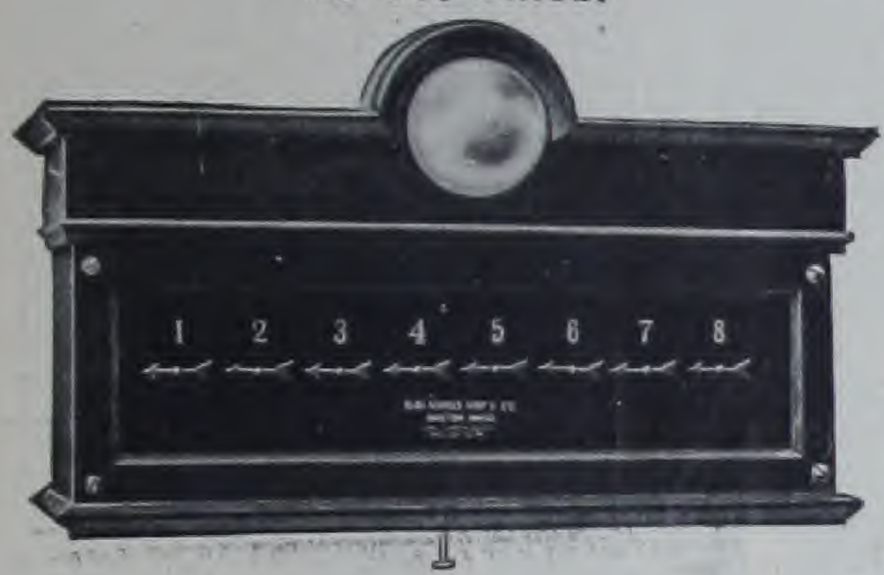
We can also furnish for marine use our "Eversure" Navy Standard type of Annunciator drop, approved by the United States Government, for use on its war vessels. It is a gravity type of drop, which, owing to its special construction, withstands the firing shock of the largest guns without accidentally jarring down.

Open.

ANNUNCIATORS.



Re-Set Knob.



Car Annunciator.

Skeleton Annunciator.

Name Plate Annunciator.

KNOB RE-SET ANNUNCIATOR.

We have devised a special scheme for re-setting drops enabling the attendant to re-set each drop individually instead of collectively. This arrangement is especially desirable in instances where calls are received too rapidly for the attendant to take care of them, and as fast as each call is attended to it can be re-set without disturbing the other indicators, thus eliminating the necessity of taking a memorandum of the calls and also overcoming any possibility of a call being missed, as is often the case in the old arrangement where annunciators are re-set by the regular mechanical set-back. This is accomplished by placing a knob on each arrow in the manner as shown in the illustration making it possible to re-set the needle by this front piece without touching the needle itself and without causing any strain on the mechanism. This special arrangement could be supplied with any of our needle annunciators at a slight advance in cost. Prices on application.

CAR ANNUNCIATORS.

This type of Annunciator is used quite extensively for car use, but is equally desirable in places where space would not permit of arranging drops other than horizontally, or where parties prefer the drops arranged in this manner.

An instrument of this kind was installed some time ago on a railway train, and although it has traveled 100,000 miles, the Annunciator operates as well as when first installed. The case can be finished to match the surrounding woodwork.

Prices on application.

SKELETON ANNUNCIATORS.

The illustration shows the manner in which we supply Annunciators, which are to be enclosed in a recess in the wall. The face plate is mounted on a plain frame, and an extra margin is left on all sides, so it will be possible for carpenters or cabinet makers to supply a suitable frame, which would match the surrounding woodwork. We can furnish this instrument in the regular or return-call style, and it is also possible to furnish the Annunciphone in the same manner.

In ordering return-call Annunciators and Annunciphones, it would be necessary to furnish sample of the surrounding woodwork, so that we can finish the return-call board or plug board to match.

It is impossible to hinge this instrument so that it can be easily swung open unless there is a space at the right as great as the depth of the frame which holds the face plate.

In instances where it is desired to place an Annunciator in a certain space, the Skeleton Case is the only practical way to take care of such requirements. If regular cases are supplied, it would be an exceedingly difficult matter for carpenters to make a trim to meet all the projections of such cases.

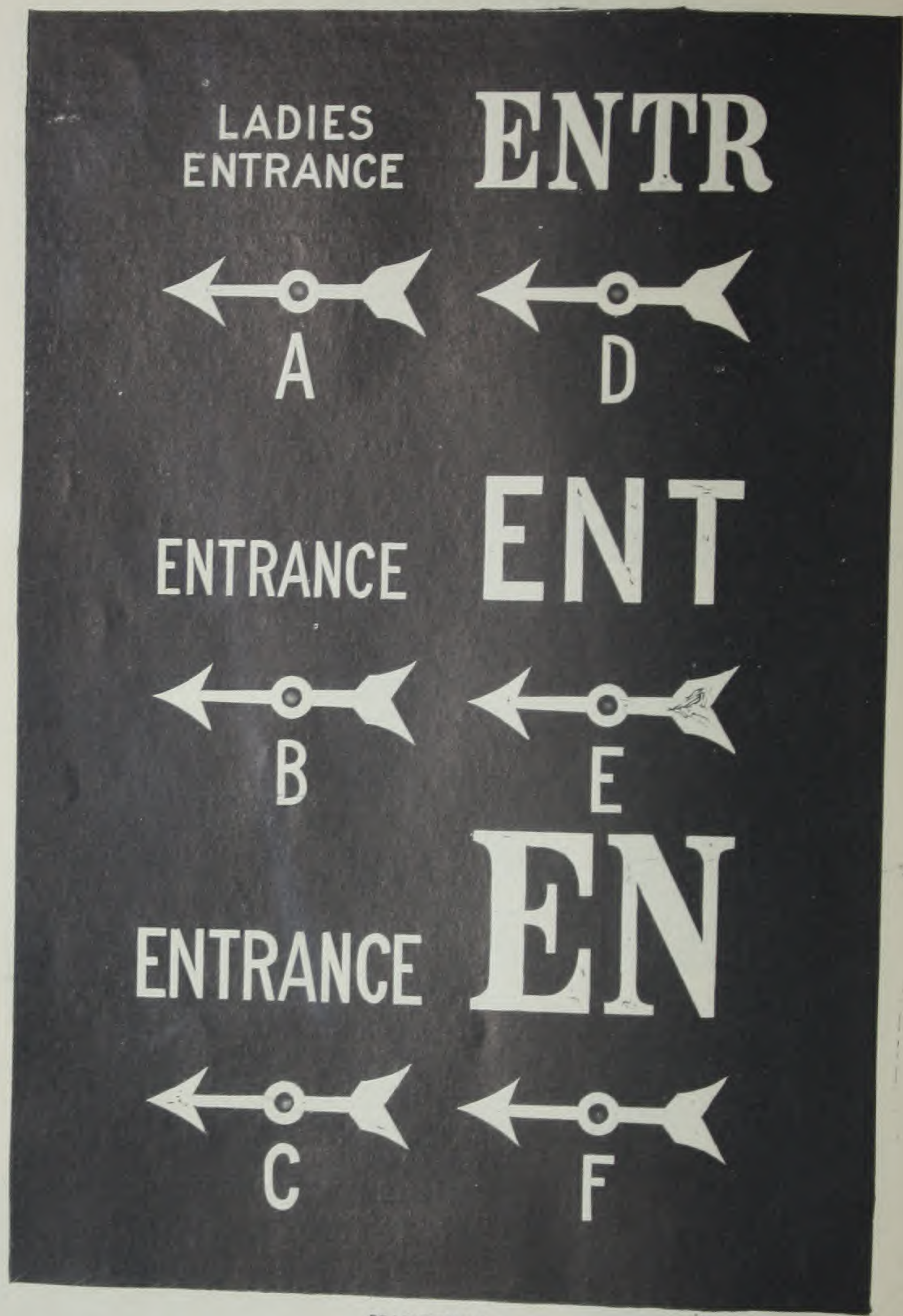
Prices on application.

NAME PLATE ANNUNCIATORS.

This style of case is especially designed for restaurant use and other places where it is necessary to frequently change the indications. Annunciators are equipped with either one or two doors, the number depending on the size of the case, thus permitting a rapid change of indications.

Our "Ross" Annunciators are installed in many restaurants, and in some cases each drop is used as many as 500 times a day, and notwithstanding the severe work, the instruments have always given perfect satisfaction. Prices on application.

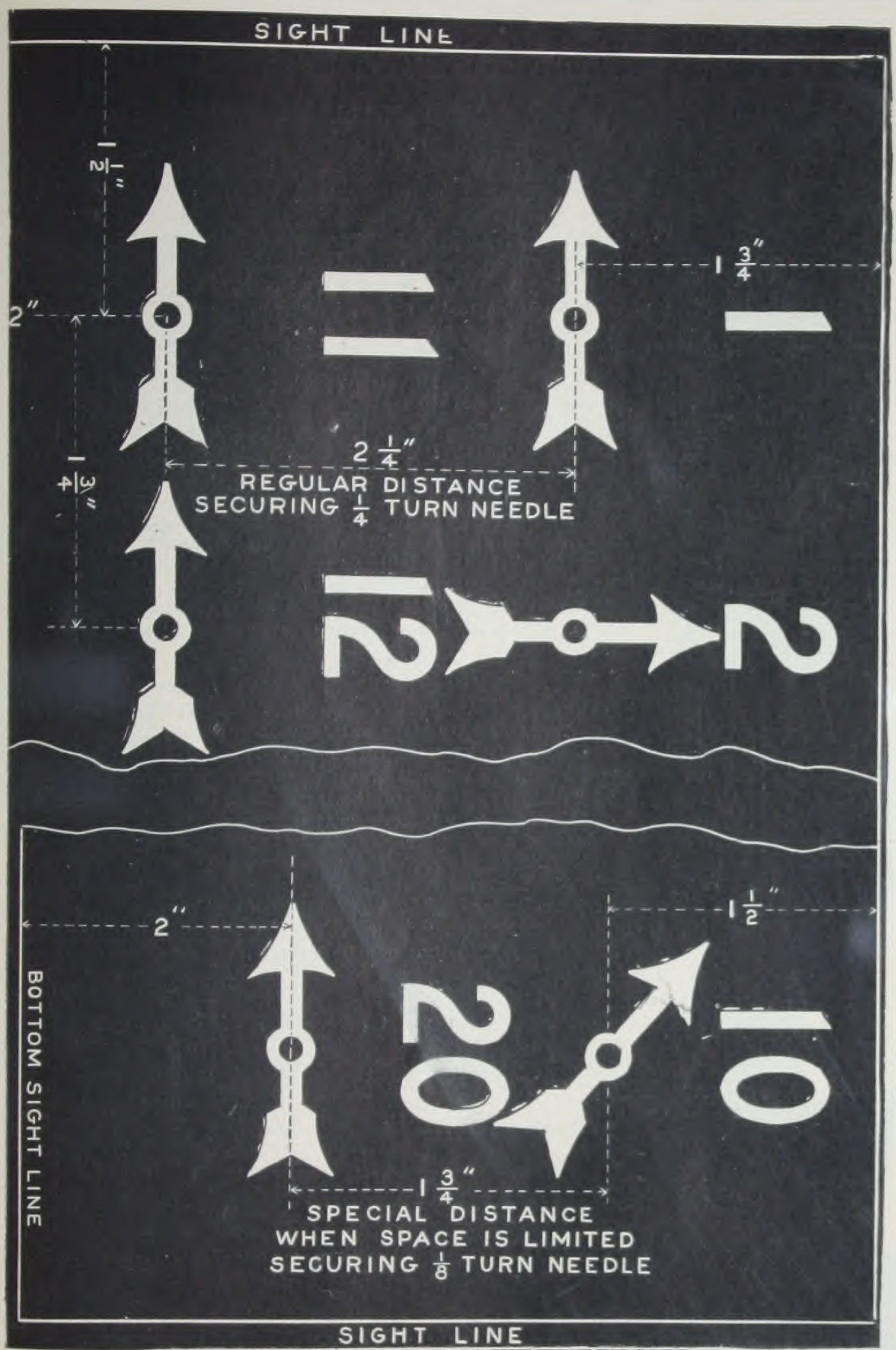
ANNUNCIATORS.



MARKINGS.

The above illustration shows sizes and styles of letters which can be used in marking Ross Annunciators. We have corresponding figures for the different sizes of letters. The number of letters placed above each needle in the cut indicates the largest number of letters figures of that size that can be used.

Unless orders specify which style is desired, we use our own discretion.



SECTIONS OF FACE PLATES

ROSS ANNUNCIATOR

SCALE FULL SIZE

ANNUNCIATORS.

THE "NOXALL" ANNUNCIATOR.

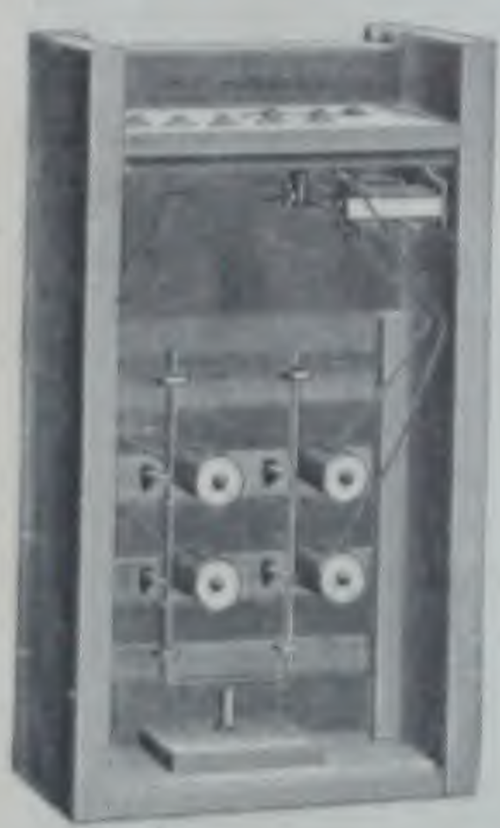
No. 45736.

For a low-priced Annunciator this instrument does not belie its name. It is designed especially for construction work where specifications require a perfect-working Annunciator, but where there is no necessity of supplying such a handsomely designed and finely finished instrument as our celebrated Ross.

We have produced an instrument of this character without sacrificing what we consider a necessary requisite for perfect Annunciator service, **a needle for every drop,** for it has been thoroughly demonstrated that lost indications will result where but one needle is provided to do the work of two.

CONSTRUCTION OF DROP.

The principle of the Annunciator is as novel as it is simple, utilizing as it does a possibility of invention which has existed ever since "black tin" (telephone receiver diaphragm metal) has been used as the face-plate of gravity needle annunciators. From a face-plate of this character a banjo-shaped piece is partially punched out (a connection being left at the end of the neck), forming an armature which is attracted when the magnet back of it is energized, releasing an unbalanced needle. The needle is sustained in its normal position by the edge of this armature. The action of the latter is the same in principle as that of a telephone receiver, and is as positive, sure and enduring.



Rear View.

THE COMPLETE INSTRUMENT.

The Noxall Annunciator has been manufactured by us for eight years and its large sale, direct and through the jobber, proves conclusively that all the claims we originally made for the instrument when it was first placed on the market were warranted. A number of the largest supply houses are handling the same, who inform us that it is giving their customers the best of satisfaction.

The instrument, owing to its small size and the fact that it cannot be shaken down, is particularly adapted for use in elevators and palace-car service. Contractors who require a low-priced but effective instrument for contract work will find the Noxall everything that can be desired.

Sectional view of Drop.

Front view of Drop.

Code Word.	List No.		List Price, Each.
Zugob	45735	4 Drop. Size, 6 in. wide, 9¾ in. high	$3.20
Zugod	45736	6 Drop. Size, 6 in. wide, 11¼ in. high	4.80
Zugof	45737	8 Drop. Size, 6 in. wide, 12½ in. high	6.40
Zugog	45738	10 Drop. Size, 6 in. wide, 14 in. high	7.60
Zugoh	45739	12 Drop. Size, 6 in. wide, 15¼ in. high	8.50
Zugok	45740	14 Drop. Size, 6 in. wide, 16½ in. high	10.00
Zugol	45741	16 Drop. Size, 6 in. wide, 18 in. high	11.50

No extra charge for name and special lettering.

Made only in oak.

No. 18374.

ANNUNCIATORS.

"ROSS" ETONIAL STYLE.

This new type is an addition to our variety of other styles and as these cases which we have made to order are proving so desirable we have decided to add this to our stock styles and will be in a position to furnish this instrument for immediate shipment in the styles and sizes mentioned below. This instrument has all of the characteristic qualities of our "Ross" Annunciators. Furnished in intervening sizes. Finish will be golden oak only. No extra charge for lettering and your name on the face plate. It can be fitted with our automatic or electric set backs, which arrangement is well worth consideration.

No. 18384.

Code Word.	List No.	Arrangement. Drops.	Arrangement. Across.	Arrangement. Down.	Extreme Measurements. Wide.	Extreme Measurements. High.	List Price.
Zacenup	18373	4	2	2	8	x13½	$6.50
Zacenur	18374	6	2	3	8	x15¾	9.00
Zacenus	18375	8	2	4	8	x18	11.00
Zacenut	18376	9	3	3	9¾	x15¾	12.50
Zacenuv	18377	10	2	5	8	x20¼	13.00
Zacenuw	18378	12	4	3	11¼	x15¾	15.00
Zacenux	18379	16	4	4	11¼	x18	19.00
Zacenuy	18380	20	4	5	11¼	x20¼	23.00

"ETONIAL" ELEVATOR ANNUNCIATOR.

GOLDEN OAK.

Zacenuz	18381	3	..	.	6	x15¾	6.00
Zacepa	18382	5	..	..	6	x20¼	8.00
Zacepab	18383	7	..	..	6	x24¾	10.50
Zacepac	18384	9	..	..	8	x29¼	12.50
Zacepad	18385	Extra for back board.....					1.00

Metal Annunciator.

METAL ANNUNCIATORS.

The illustration shows a double indicator elevator Annunciator installed in a metal case. This arrangement can be utilized for single or double row elevator Annunciator or for any other special requirements. The case can be finished to match surroundings, and if it is to match exactly, it will be well to send us a sample to work from. An ordinary buzzer can be placed on the top or inside of the case if necessary. Prices on application.

ANNUNCIATORS.

ROSS ELEVATOR ANNUNCIATOR.

"REMOVABLE BELL."

This is the regular instrument, with drops arranged in a single perpendicular row for elevator use. The needles give a full quarter turn, and will not shake down.

The use of elevator annunciators, fitted with electrical set-backs, is constantly increasing. With a push button within easy reach, upon pressure of which the needles can be reset, the elevator attendant is not obliged to leave his position at the door of the car for the purpose of resetting the drops, thereby greatly reducing the chance of accident.

When electrical set-backs are fitted to elevator annunciators an extra wire is required in the elevator cable, unless a local battery is placed in or about the car.

Where annunciators are to be placed in cars enclosed in metal latticework we can supply solid wood backs, to which the front is attached by lugs, at 50 cents net.

Code Word.	List No.	Drops.	Width.	Depth.	Height.	Price Mechan'l Set-back.	Price Electrical Set-back.
Zabeyoz	43035	3	6½	4⅛	13	$ 6.00	$ 8.00
Zabeyu	43036	4	6½	4⅛	15½	6.50	8.50
Zabeyub	43037	5	6½	4⅛	17½	7.80	9.80
Zabeyud	43038	6	6½	4⅛	19¾	9.00	11.00
Zabeyuf	43039	7	8¾	4⅛	17½	10.00	12.00
Zabeyug	43040	8	8¾	4⅛	17½	11.00	13.00
Zabeyuh	43041	9	8¾	4⅛	19¾	12.00	14.00
Zabeyuk	43042	10	8¾	4⅛	19¾	13.00	15.00

Larger sizes to order.

Made up to six drop in a single row. Larger sizes in two rows.

Made in light oak. Special woods to order.

No extra charge for special lettering and your name on face-plate.

THE "NOXALL" ELEVATOR ANNUNCIATOR.

This is the Noxall annunciator, mechanism arranged for elevator use, in a single row, and surrounded by a special case. A concealed gong is used, but as the case can be quickly removed, should occasion require, there is no disadvantage from this method.

Binding posts are placed in the lower portion of the instrument, which facilitates wiring. With a car of limited area, or where an annunciator is required for a high building, we advocate this style, as it is smaller and has less depth than any other elevator annunciator.

This style can be arranged as a "double indicator," if desired.

		Drops.	Width.	Depth.	Height.	List Price Each.
Zabeyul	43043	3	5⅛	3	13⅛	5.50
Zabeyum	43044	4	5⅛	3	14½	6.25
Zabeyun	43045	5	5⅛	3	15⅛	7.00
Zabeyup	43046	6	5⅛	3	16¾	7.75
Zabeyur	43047	7	5⅛	3	18	8.50
Zabeyus	43048	8	5⅛	3	19	9.25
Zabeyut	43049	9	5⅛	3	20⅛	10.00
Zabeyuv	43050	10	5⅛	3	21¾	10.75

Larger sizes to order.

Made in light oak. Special woods to order.

No extra charge for special lettering and your name on face-plate.

ANNUNCIATORS

STYLE "A," ROSS "DOUBLE-INDICATOR" ELEVATOR ANNUNCIATOR.

"REMOVABLE BELL."

This instrument practically consists of two Annunciators installed in one case; one row used for calls made by persons desiring to be taken up, and the other row for those who wish to be taken down by the elevator.

The information obtained by the elevator attendant saves valuable time, as it admits of passing floors without stopping where persons desire to be carried in the opposite direction from that which the elevator is moving.

As will be noticed, the set-back mechanism is used for each row, but we strongly advocate fitting the instrument with an electrical set-back.

When electrical set-backs are fitted to Elevator Annunciators an extra wire is required in the elevator cable, unless a local battery is placed in or about the car.

This style is furnished with a back, enabling it to be quickly bolted to the side of the car, and the case is hung on hinges. Push button, engraved "Up" and "Down" can be used at elevator entrances, or special pushes in metal, to architects' designs and finish, can be furnished.

Code Word.	List No.	Drops.	Floors.	Width.	Depth.	Height.	Mechanical Set-back.	Electrical Set-back.
Zabetow	50527	8	4	7⅜	5	16	$15.00	$17.00
Zabetox	50528	10	5	7⅜	5	17⅝	17.00	19.00
Zabetoz	50529	12	6	7⅜	5	19⅜	19.00	21.00
Zabetu	50530	14	7	7⅜	5	21¼	21.00	23.00
Zabetub	50531	16	8	7⅜	5	23⅛	23.00	25.00
Zabetud	50532	18	9	7⅜	5	25	25.00	27.00
Zabetuf	50533	20	10	7⅜	5	26⅜	27.00	29.00

Larger sizes to order. Made in light oak. Special woods to order. No extra charge for special lettering and your name on face-plate.

STYLE "B," ROSS "DOUBLE-INDICATOR" ELEVATOR ANNUNCIATOR.

This is the same instrument as described above, except that it is fitted with a Monitor Bell, which is mounted on a back board, and can be quickly removed without disturbing the mechanism. This style can be fitted with electrical set-back.

Code Word.	List No.	Drops.	Floors	Width.	Depth.	Height.	Mechanical Set-back.	Electrical Set-back.
Zabetug	50534	8	4	7⅜	3⅜	16¼	$15.00	$17.00
Zabetuh	50535	10	5	7⅜	3⅜	18	17.00	19.00
Zabetuk	50536	12	6	7⅜	3⅜	19¾	19.00	21.00
Zabetul	50537	14	7	7⅜	3⅜	21⅝	21.00	23.00
Zabetum	50538	16	8	7⅜	3⅜	23½	23.00	25.00
Zabetun	50539	18	9	7⅜	3⅜	25¼	25.00	27.00
Zabetup	50540	20	10	7⅜	3⅜	27	27.00	29.00

Larger sizes to order.

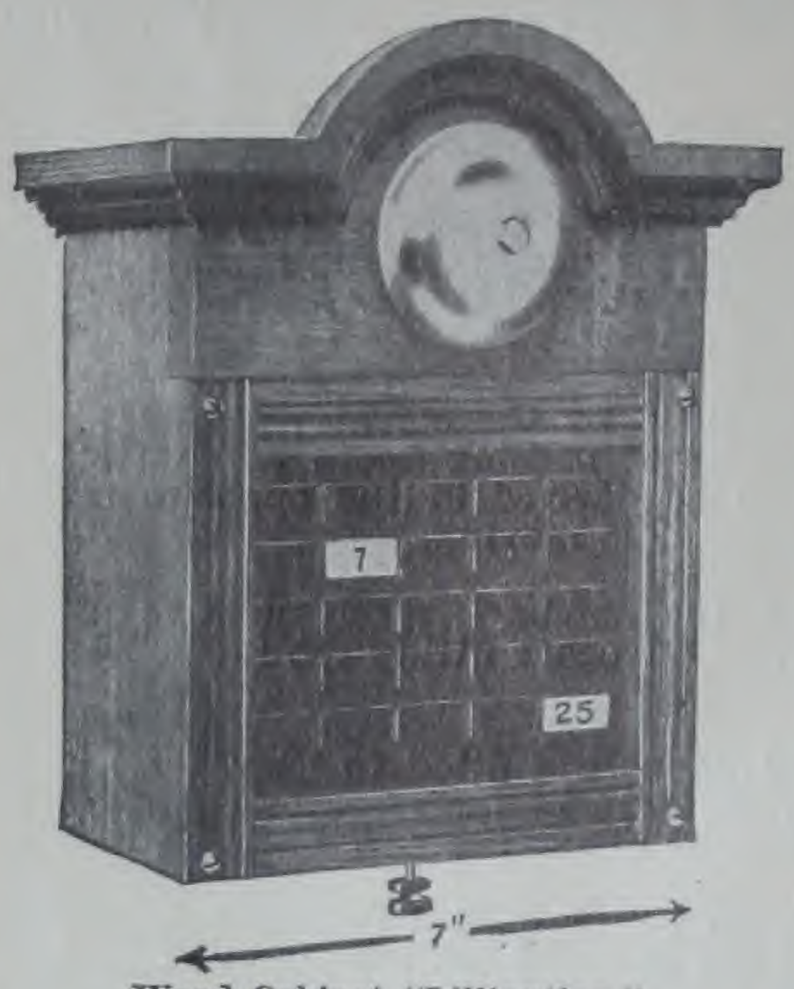
Made in light oak. Special woods to order.

No extra charge for special lettering and your name on face-plate.

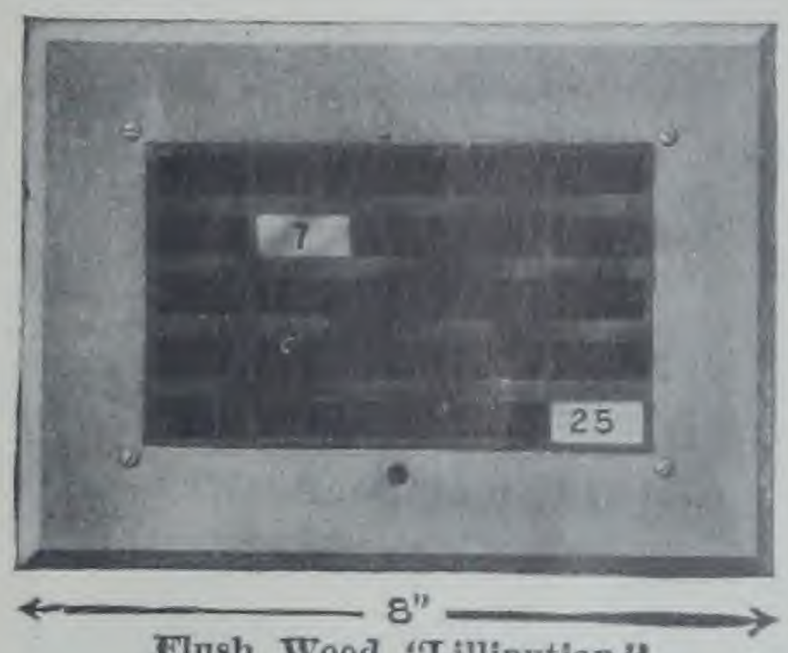
METAL CASES.

Metal cases are furnished similar in design to style "B," except that some ornamentation is used in making the casting. We can also furnish the same in cases to match architects' designs.

ANNUNCIATORS.



Wood Cabinet "Lilliputian."



Flush Wood "Lilliputian."

Metallic Cabinet "Lilliputian." Note small size. 6½ in. wide, 4½ in. high.

THE LILLIPUTIAN ANNUNCIATOR.

An Annunciator Drop having a signal which can be seen distinctly and yet occupy but a small area when mounted collectively has been sought by the trade unsuccessfully until the advent of the Lilliputian. This Annunciator is adapted for all work where a small and unobtrusive instrument is desired, such as in parlor and sleeping cars, elevators, residences, desk and other such uses which will occur to the architect and contractor, also for flush installation which is rapidly coming into vogue. Four styles of cases are furnished, consisting of a cabinet and flush forms in both wood and metal. With the flush forms are furnished outlet boxes adapted for cable and flexible or iron conduit.

LILLIPUTIAN DROP.

This is an adaptation of our celebrated "Rotokoll" central energy telephone switchboard drop, as will be noted by the illustration. The signal shutter has two faces pivoted to a bracket in front of the magnets. The face normally presented is coated with black enamel, and the one which comes into view when the magnet is energized (bearing the designating number) with white enamel. Four letters or numbers can be placed on this face. The comparative size of this and other shutter drops is shown by the fact that notwithstanding the large size of the signal face 1 inch long by ⅝ inch wide, it occupies but one-fifth of the area of other shutter drops. The "sight size" of twenty-five drops is but 5 inch by 1¾ inch. The operation is the exact reverse of other shutter drops, for instead of the shutter being sustained by the armature catch while normally inoperative, allowing the drop to be jarred down, the Lilliputian is during this period in its released position, and therefore incapable of accidental release. The Lilliputian shutter is sustained by the armature catch only from the time the circuit is closed until it is released by lifting the set-back mechanism. During this period it is, however, so securely caught that no jar which will be encountered in actual use will accidentally release it.

CLOSED CIRCUIT LILLIPUTIAN.

Owing to the method of operation of this drop it is especially adapted for use with closed circuit batteries, indicating when the circuit is broken, instead of when closed, as in the open circuit form. For tank alarms the drops all indicate when the tank is full, one falling for every foot the water recedes, re-indicating as the tank fills.

TYPE "A" WOOD CABINET.

Code Word.	List No.		Price.
Zacezup	19562	5 Drops, 7 in. wide, 7½ in. high	$10.00
Zacezur	19563	Additional 5 drop banks (up to 20), extra per drop	1.50
Zacezus	19564	25 Drops, 7 in wide, 9½ in. high	40.00
Zacezut	19565	Additional 5 drop banks (up to 45), extra per drop	1.20
Zacezuv	19566	50 Drop, 7 in. wide, 12½ in. high	70.00
Zacezuw	19567	Additional 10 drop banks (up to 100), extra per drop	1.20

TYPE "B" METAL CABINET.

Zacezux	19568	5 Drops, 6½ in. wide, 3½ in. high	14.00
Zacezuy	19569	Additional 5 drop banks (up to 20), extral per drop	1.50
Zacezuz	19570	25 Drops, 6½ in. wide, 4½ in. high	44.00
Zaciba	19571	Additional 5 drop banks (up to 45), extra per drop	1.50
Zacibab	19572	50 drops, 6½ in. wide, 7½ in. high	80.00
Zacibac	19573	Additional 10 drop banks (up to 100), extra per drop	1.50

STYLE "C" METAL FLUSH, OR STYLE "D" WOOD FLUSH.

			Price Complete.
Zacibad	19574	5 Drops plate 8 in. x 5¾ in. Outlet box 6½ in. x 4¼ in.	20.00
Zacibaf	19575	Additional 5 drop banks (up to 20), extra per drop	2.00
Zacibag	19576	25 Drops Plate 8 in. x 7 in. Outlet box 6½ in. x 5½ in.	60.00
Zacibah	19577	Additional 5 drop banks (up to 45 in), extra per drop	2.00
Zacibak	19578	50 Drops plate 8 in. x 10 in. Outlet box 6½ in. x 8½ in.	100.00
Zacibal	19579	Additional 10 drop banks (up to 100), extra per drop	2.00

ANNUNCIATORS.

No. 19401.

The "Lilliputian" Metal Back Board.

Removable Bell, showing Screw used in changing bell to buzzer.

"Lilliputian" Drop, showing white and black faces, former in indicating position.

THE LILLIPUTIAN ELEVATOR ANNUNCIATOR.

Patent Pending.

This instrument is an exemplification of all that is to be desired in an elevator Annunciator. Faults of prior styles have been eliminated and new features introduced which have met with the approval of the elevator manufacturer, the construction corps, and the trouble man.

CASES.

The case is made of sheet metal, die formed, and therefore all parts are interchangeable. The back is attached to the car by means of two metal back straps and four bolts which pass through the lugs on the back board. It will be noted that the holes in these lugs are elongated, accommodating the varying sizes of openings in the grill work of the car. The Annunciator proper is supported on four lugs by filister headed screws tapped into the case and "upset" to prevent their becoming loose. It will be noted the case is well supported even should the screws become loosened. Under the rounding top, protected by insulating material, are located the binding posts. These are so constructed that they give positive assurance of perfect contact without loosening or turning. In this position the connections are quickly accessible for testing or otherwise, by loosening four screws which fasten the top. This instrument is so small that it can be placed in front of the elevator man, and not require his turning around as is necessary in ordinary Annunciators. The small size of the instrument and its position lessen chance for accident, as the elevator attendant is not obliged to turn around to see the Annunciator

BELL MECHANISM.

By means of a simple eccentric movement, the bell can be changed to a buzzer signal. (Patent pending.) This is accomplished by lifting the screw shown in the illustration. This rotates the gong out of contact with the hammer ball. The bell mechanism as a whole can be removed by simply removing four screws. The bell is our celebrated Victor Bell movement, so constructed as to obviate any adjustment if the batteries are kept in fair condition. The principle upon which the bell is constructed is that of making all parts of sufficient strength to withstand the hammering action of the armature without changing adjustment, and not to provide adjusting screws which loosen and thus defeat the very purpose for which they were intended. This Annunciator in conjunction with the use of the No. 3 Samson Battery will give perfect service for long periods of time without any adjustment or necessity of recharging the battery.

MARKING.

With every instrument are furnished celluloid indicators which enable a change to be made in the regular marking (that is from 1 up) to include basement and sub-basement, which will be appreciated where instruments are ordered without knowledge of whether the car is to run to basement

SINGLE ROW LILLIPUTIAN.

Code Word.	List No.		List Price, Each.
Zacevod	19395	4 Drop	10.00
Zacevof	19396	5 Drop	11.30
Zacevog	19397	6 Drop	12.60
Zacevoh	19398	7 Drop	14.00
Zacevok	19399	8 Drop	16.00
Zacevol	19400	9 Drop	17.00
Zacevom	19401	10 Drop	18.00
Zacevon	19402	11 Drop	19.00
Zacevop	19403	12 Drop	20.00

"UP AND DOWN" LILLIPUTIAN.

Zacevit	19386	8 Drop (4 floors)	$16.00
Zaceviv	19387	10 Drop (5 floors)	18.00
Zaceviw	19388	12 Drop (6 floors)	20.00
Zacevix	19389	14 Drop (7 floors)	22.00
Zaceviy	19390	16 Drop (8 floors)	24.00
Zaceviz	19391	18 Drop (9 floors)	26.00
Zacevo	19392	20 Drop (10 floors)	28.00
Zacevob	19393	22 Drop (11 floors)	30.00
Zacevoc	19394	24 Drop (12 floors)	32.00

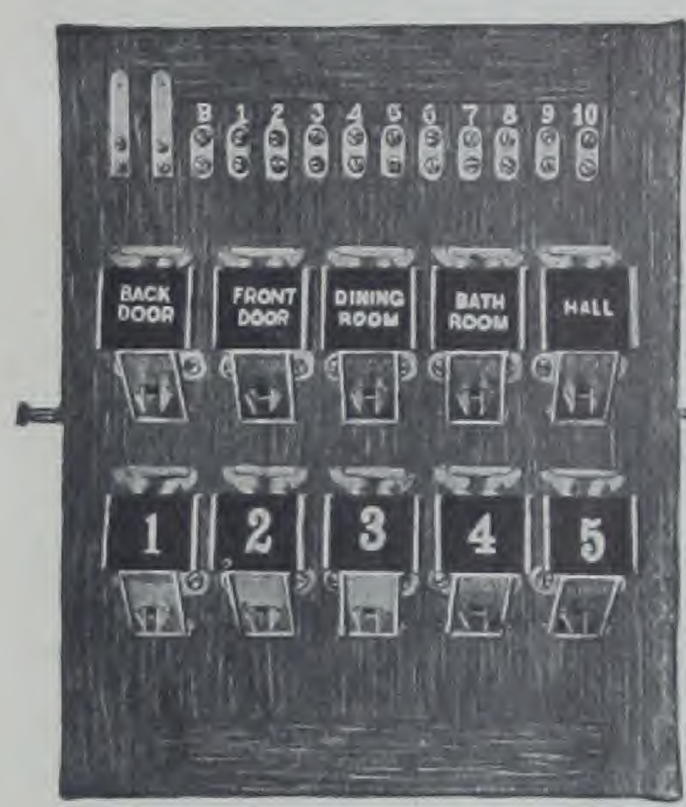
ANNUNCIATORS.

The "Eversure."
Jar-Proof Annunciator.

THE EVERSURE GRAVITY DROP ANNUNCIATOR.

The Eversure "Jar-Proof" Gravity Shutter Drop Annunciator constitutes the highest development in this style of instrument. A shutter drop which would not release from accidental jar of the wall on which the instrument was attached, or from a too energetic pressure of the set-back mechanism, was considered impossible until the advent of the Eversure.

It was owing to the positive retention of the drop in its normal position under all circumstances which led to its adaptation by the United States Government for its war vessels. Actual operation of thousands of drops has demonstarted that the shock of the heaviest guns will not prematurely release a drop, and that no other drop as yet manufactured would stand this severe test.



Backboard.
Tongued, Grooved and Panelled.

CONSTRUCTION OF DROP.

The feature of absolute prevention against premature release and a positive lock when resetting the drop is accomplished by the use of a pair of oppositely impelled spring armature levers, which are drawn together when the magnet is energized, thereby releasing the armature catches which engage the sides of a slot in the armature shutter. It will be noted that the shutter is locked in all directions, and that this construction precludes against the possibility of the drop being permanently released, even though constantly jarred or violently agitated. The armatures are prevented from sticking to the core by covering the exposed portion of the magnet pole with a diamagnetic cap provided with arms which act as limiting stops. The armature conforms to the shape of the pole and has a raised lip which presents a greater surface for magnetic action. The drop will operate over 500 feet of wire, with a bell in circuit on 3 cells of battery.

Type "A" Cabinet.

CABINET WORK.

The cabinet work in which the drops are installed is made from quartered sawed oak, highly finished. The backboard is tongued and grooved and panelled, thereby preventing the swelling and shrinking which is experienced in many cheap forms of gravity drop annunciators. The vibrating bell is our celebrated Victor, which never requires adjusting. Inoperation of the bell in any of our annunciators indicates not that the bell is out of adjustment, but that the battery is depleted and needs recharging.

To those desiring a high class gravity drop annunciator we recommend the Eversure as the highest grade manufactured.

ANNUNCIATORS.

Type "A" Hotel Style.

Type "B" Cabinet.

Type "C" Cabinet.

THE EVERSURE GRAVITY DROP ANNUNCIATOR—Continued.

Standard finish, golden oak; other woods and finishes extra. Special lettering on drops and name on glass without extra charge. Intervening sizes furnished at price per drop for the next smallest size.

Skeleton cases furnished at the price of the "B" or "C" cabinet.

Annunciphone can be supplied equipped with our Eversure "Jar-Proof" Drop.

PRICE LIST.

Style "A" Cabinet.

Code Word.	List No.		
Zacemuy	18280	3 drop Eversure.....	$6.50
Zacemuz	18281	4-drop Eversure.....	7.00
Zacena	18282	6-drop Eversure.....	10.00
Zacenab	18283	8-drop Eversure.....	12.00
Zacenac	18284	10-drop Eversure.....	14.00
Zacenad	18285	12-drop Eversure.....	16.00
Zacenaf	18286	15-drop Eversure.....	19.50
Zacenag	18287	20-drop Eversure.....	26.00
Zacenah	18288	21 to 50-drop, per drop..	1.20

Style "A" Return-Call.

Zacenak	18289	6-drop Exersure.....	16.00
Zacenal	18290	10-drop Eversure.....	20.00
Zacenam	18291	15-drop Eversure.....	28.00
Zacenan	18292	20-drop Eversure.....	36.00
Zacenap	18293	21 to 50-drop, per drop..	1.70

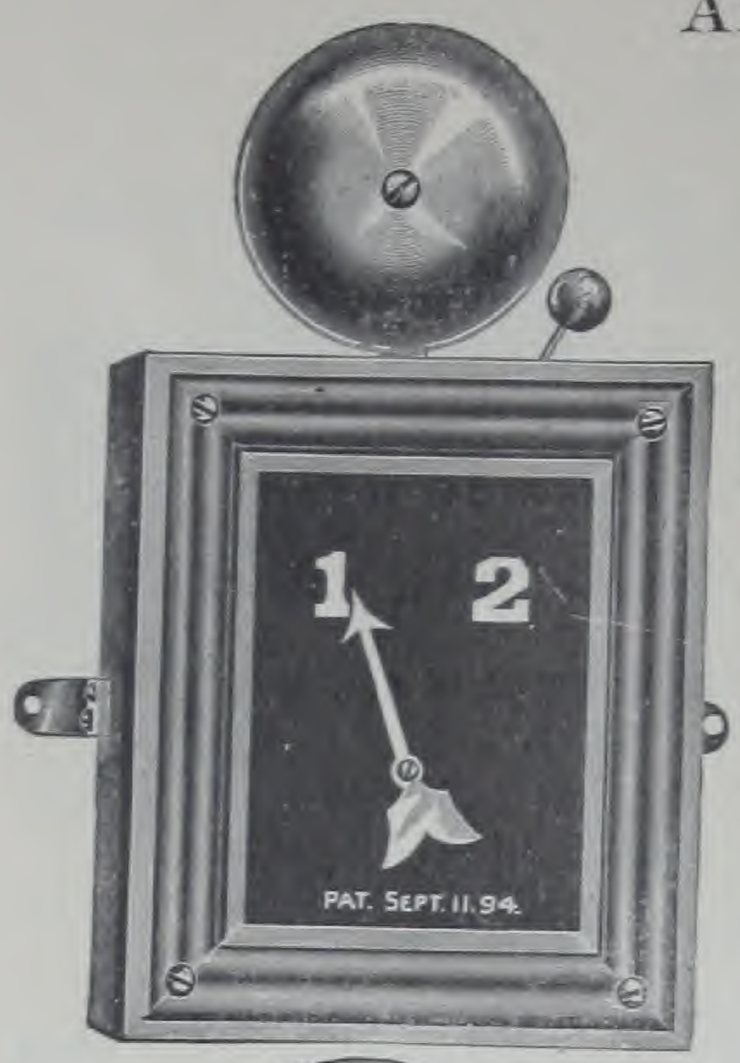
Style "B" or "C" Cabinet.

Zacenar	18294	20-drop Eversure.....	36.00
Zacenas	18295	30-drop Eversure.....	52.00
Zacenat	18296	40-drop Eversure.....	70.00
Zacenav	18297	50-drop Eversure.....	85.00
Zacenaw	18298	60-drop Eversure.....	96.00
Zacenax	18299	70-drop Eversure.....	105.00
Zacenay	18300	80-drop Eversure.....	120.00
Zacenaz	18301	90-drop Eversure.....	130.00
Zacene	18302	100-drop Eversure.....	140.00

Style "B" or "C" Return-Call.

Zaceneb	18303	20-drop Eversure.....	52.00
Zacenec	18304	30-drop Eversure.....	76.00
Zacened	18305	40-drop Eversure.....	98.00
Zacenef	18306	50-drop Eversure.....	118.00
Zaceneg	18307	60-drop Eversure.....	132.00
Zaceneh	18308	70-drop Eversure.....	147.00
Zacenek	18309	80-drop Eversure.....	168.00
Zacenel	18310	90-drop Eversure.....	184.00
Zacenem	18311	100-drop Eversure.....	200.00

ANNUNCIATORS

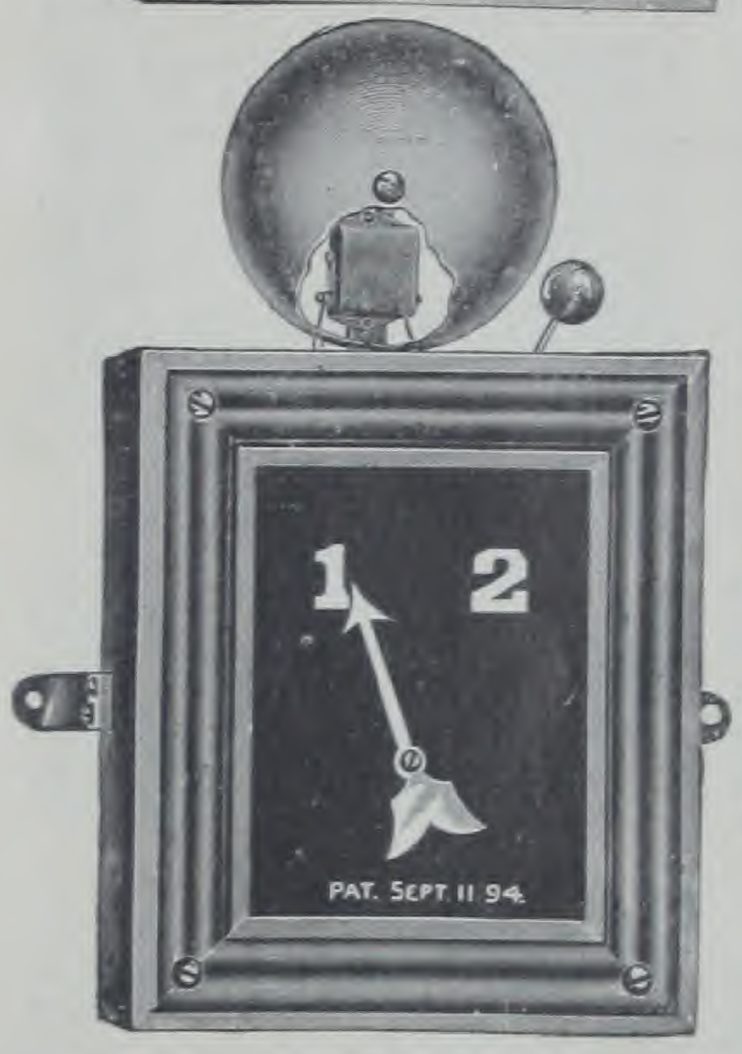


THE "DANDY" AUTOMATIC TWO-POINT INDICATING BELL.

This is one of our best specialties, and its usefulness will be at once appreciated. It serves the purpose of two bells, for front and back doors, and is also advantageous for many special requirements. Made in a strong and well finished case of light oak, with glass front and gilded numbers, it makes a handsome and desirable instrument for the price. The needle does not require resetting.

Code Word.	List No.		List Price.
Zabevol	50609	.....	$2.50

Special lettering 10 cents extra.



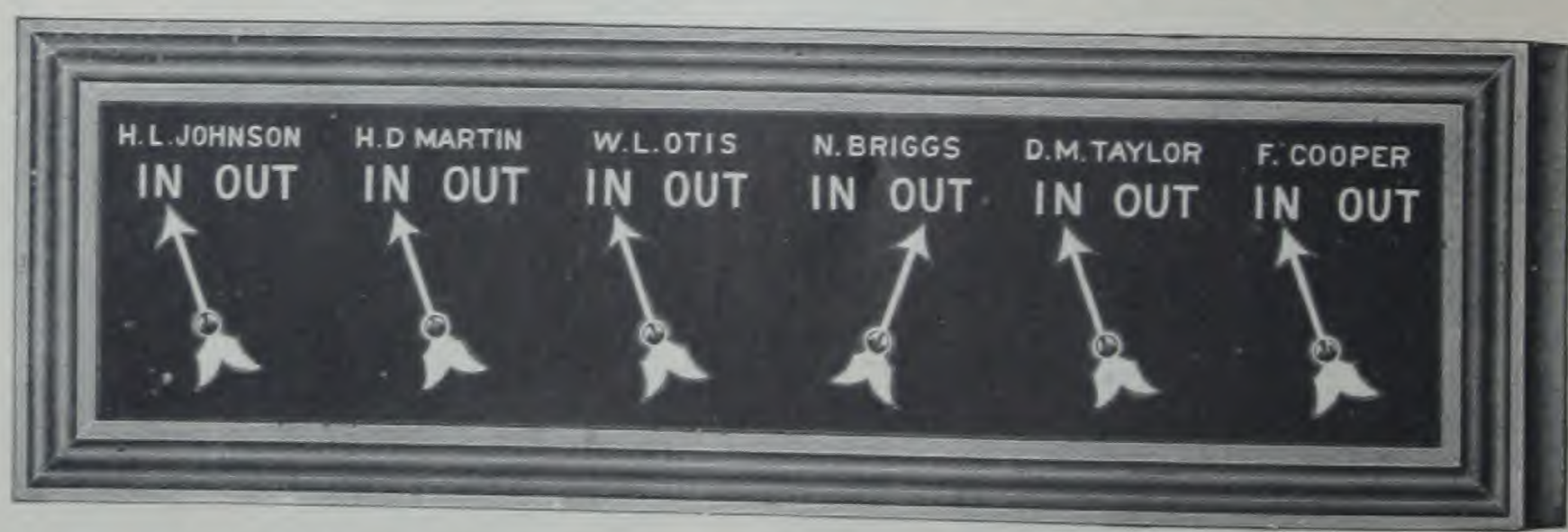
THE "THREE-POINT" AUTOMATIC BUZZER ANNUNCIATOR.

By the addition of a small metal buzzer, which is fastened to the gong post of our Two-Point Dandy Indicating Bell, it becomes a three-point annunciator especially applicable to the three calls of front door, side door and dining room. The latter call is made from the buzzer, and is an improvement over the method of using a bell; for while the annunciator bell when rung draws every one's attention to the fact, the buzzer with its slight tone can be heard by the servant only. The buzzer is accessible for adjustment by simply removing the gong.

Zabevom	50610	.....	3.50

Special lettering 10 cents extra.

THE DANDY REGISTER.



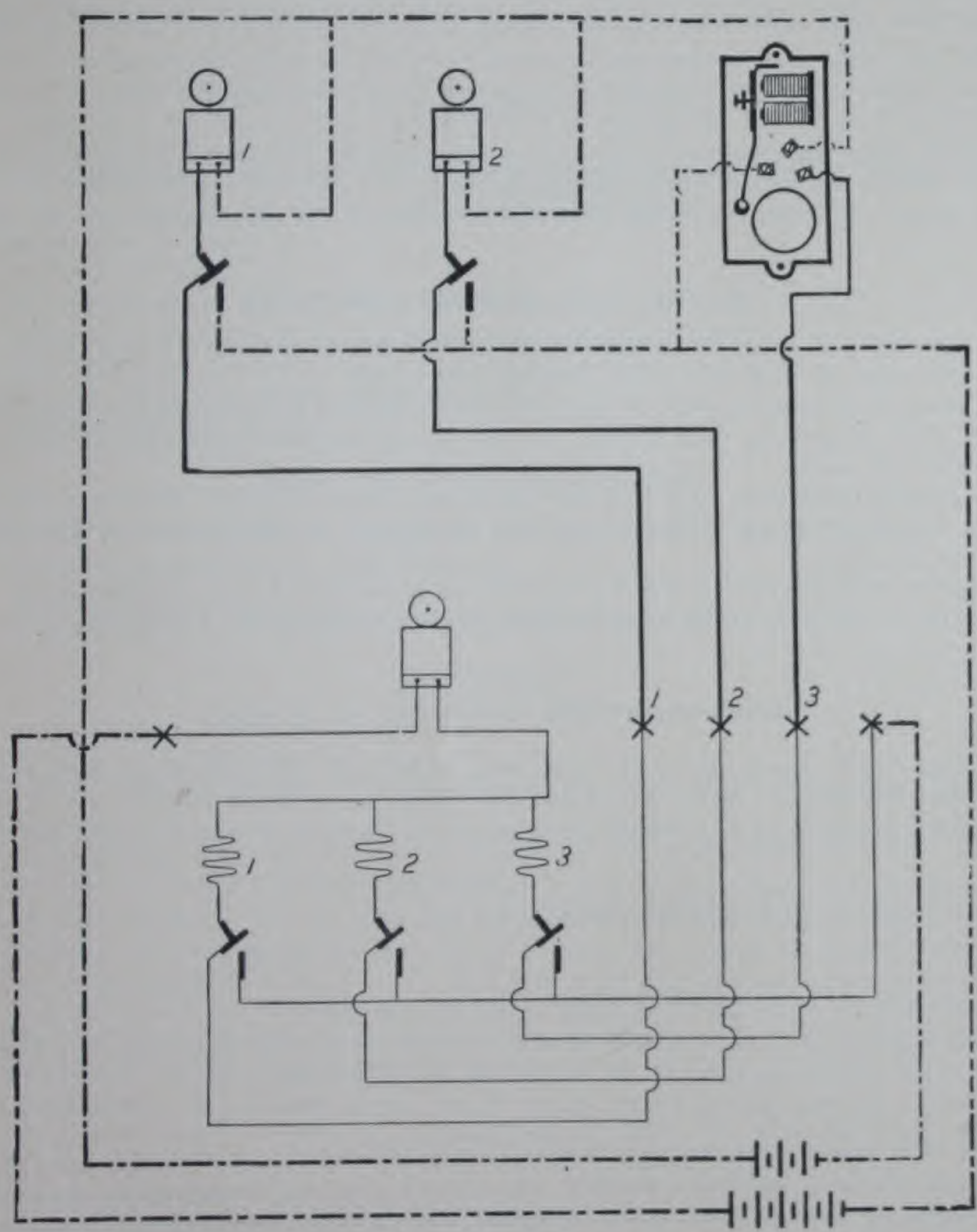
Zabevon	50611	Three Names.....	8.00
Zabevop	50612	Four Names.....	9.50
Zabevor	50613	Five Names.....	11.00
Zabevos	50614	Six Names.....	12.50
Zabevot	50615	Seven Names.....	14.00
Zabevov	50616	Eight Names.....	16.50
Zabevow	50617	Nine Names.....	17.00
Zabevox	50618	Ten Names.....	18.50

Special prices made on larger sizes.

ANNUNCIATORS.

WIRING DIAGRAM NO. 3 FOR RETURN CALL SYSTEM.

We furnish all our Return Call Annunciators above 20 drop (excepting those equipped with our "Safeguard" Automatic Fire Alarm Attachment System No. 6) for system wired as per diagram shown below. It will be seen that two battery wires and one circuit wire is used. In running long lines this system saves a large amount of wiring. The diagram also shows the proper method of connecting up our combination bell and push button. The lighter lines represent the inside wiring of the Annunciator. Before ordering Return Call Annunciators it will be well to read over the advantages of using instead the Annunciphone.



ANNUNCIATOR AND TELEPHONE SWITCHBOARD INSTRUCTIONS.

READ THIS AND THE FOLLOWING PAGE CAREFULLY.

In ordering Annunciators, either Simple, Return Call or Annunciphone, delays will be prevented and accuracy secured by a careful compliance with the following instructions:

MARKING.

Use care in giving the marking. Where proper names or the names of rooms are to be used spell plainly, and when more than one word goes to a drop write it thus:

Front Door.	East Drawing Room.	Second Floor.

When numbers are to be used state whether number 13 is to be omitted (which is usually done in hotels). If names are too long they will be abbreviated by us according to accepted usage.

FINISH.

All stock cases on Annunciators, Annunciphones and "Rotokoll" Switchboards will be finished as mentioned in the following paragraphs. All "Avonial" Annunciators or Annunciphones below 20 drop, in other than stock finishes, will be charged for as mentioned below.

EXTRA FOR SPECIAL FINISHES.

On sizes less than 25 drop for white enamel add to list..... **$6.00**
On sizes less than 25 drop for other finishes add to list..... **3.00**

On sizes of 25 drop or over, in Devonial, Baronial and Colonial styles, no extra charge except for white enamel or rare woods. Noxall House Annunciators will not be finished in any but light oak cases.

We cannot undertake to match any particular finish unless a sample of the finish is sent to us. Such terms as "Flemish oak" or "Mahogany on Birch" have a different meaning in every locality.

Samples must always be sent for special metal finishes where required.

We aim to carry in stock ready to ship, except marking, the following:

ANNUNCIATORS CARRIED IN STOCK.

Avonial in all regular sizes up to 20 drop, light oak, above 20 drop, golden oak.
Avonial Elevator, in one-eighth turn, dead black or polished black, 3, 4, 5, 6, 7 and 8.
Avonial Elevator, in one-eighth turn, Style "A" Double Indicator, light oak, 8, 10, 12, 14, 16.
Avonial Perfect, light oak, 4, 6, 8, 9, 10, 12, 16, 20.
Rival made in size to 20 drop only, light oak.
Etonial House, in golden oak only, 3, 4, 6, 8, 10, 12, 16, 20.
Etonial Elevator, golden oak only, 3, 5, 7, 9.
Noxall House, light oak, 4, 6, 8, 10, 12, 14, 16, 18, 20.
Noxall Elevator, 3, 4, 5, 6, 7, 8 in oak, cases in stock not made up, one week.
Devonial, golden oak, 25, 30, 36, 42, 49, 56, 64, 72, 81, 100.
Baronial, golden oak, 25, 30, 36, 42, 49, 56, 64, 72, 81, 100.

Note that above cases do not include return call style.

We also carry in stock the finished oak cases for the following Annunciphones. These must be made up and marked before shipping, requiring one week from receipt of order.

ANNUNCIATOR AND TELEPHONE SWITCHBOARD INSTRUCTIONS—Continued.

ANNUNCIPHONE CASES NOT MADE UP.

"Avonial"Annunciphone (for single circuit jacks), 12, 16, 20, 24, 28, 40, 50, in Golden Oak, one week.

"Devonial" Annunciphone (for single circuit jacks), 24, 28, 40, 54, in Golden Oak, one week.

"Baronial" Annunciphone, 24, 28, 40, 54, in Golden Oak, one week.

"Rotokoll" Cabinets, 25, 50 line, in Golden Oak.

The Annunciphone Cases are proper size for single circuit jacks. Instruments with Samson jacks must be made special and will require from two to three weeks. On all instruments not mentioned in the Annunciator or Annunciphone lists shipments will be delayed to make up the cases. Shipments can be made on such goods two weeks from receipt of order, with the exception of the "Colonial," which requires three weeks and the white enamel which requires four weeks.

Instruments in intervening sizes are made up in the cases of the next higher size; for instance, a 26-drop Devonial Annunciphone is put in a 28-drop case and requires but one week before shipment.

The present demand being largely for the Annunciphone, we will not carry the Return Call in stock. These must be made up, requiring two weeks. The Annunciphone, with Samson Junior Jacks, sells at the same price as the Return Call, and can be readily used as such, having the advantage of being instantly changed for telephone service should it become desirable, and this without further expense, except for the operator's instrument.

GIVE THIS INFORMATION IN ORDERING SIMPLE ANNUNCIATORS, RETURN CALL OR ANNUNCIPHONE.

A. Give style of case.
B. Number of drops.
C. Wiring diagram No. —. (See Index.)
D. Finish. Send sample when finish must exactly match.
E. Marking over needles.
F. Do you want your firm's name on plate?
G. "Safeguard" fire alarm?

ALSO ON ANNUNCIPHONES.

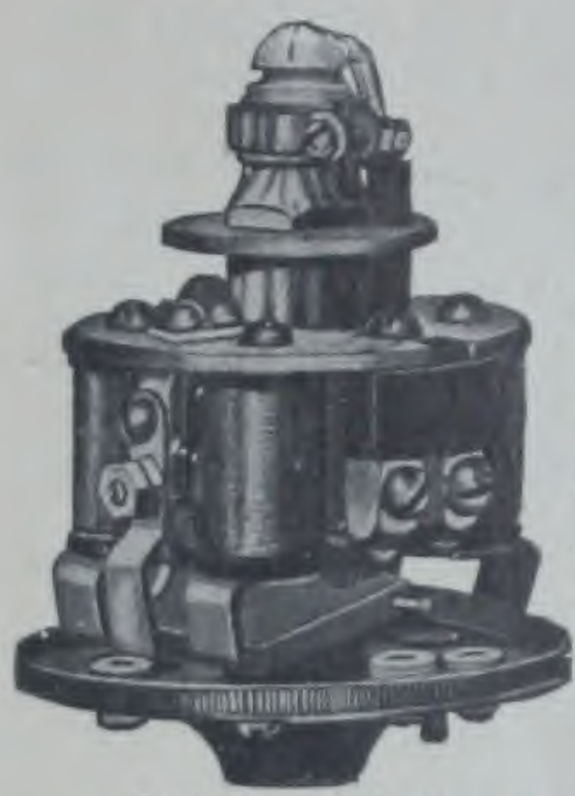
H. Jacks—Samson Metallic Circuit or Samson Junior Common Return?
I. Number of cord pairs. (See Index.)
J. What style operator's set?
K. Outside service. Whether for central energy or magneto.

"ROTOKOLL."

L. Wall, Desk or Floor Cabinet.
M. Is desk to be supplied by us?
N. Finish. Send sample. (If we don't supply the desk we cannot match finish without sample.)
O. Size of case. (Cases are made in 25, 50, 100, 150 or 200 drops or larger, all wired.)
P. Number of drops and jacks installed.
Q. Wiring diagram No. —. (See Index.) (Wiring should be No. 2, No. 4, or No. 5.)
I. Number of cord pairs?
J. Style of operator's set.
K. Outside service. Whether for central energy or magneto. (The outside service jack must be counted one of the "number of jacks installed, 'P'"; that means that with outside service on a 25-drop board only 24 drops are available for interior use.)
G. "Safeguard" fire alarm.
R. Can you connect direct to switchboard or shall we send terminal board and cable, and what length?
S. Room Telephones (No. 201, No. 211, No. 212, No. 250, No. 401, No. 701, No. 711, No. 751, or Desk Stands.) (See Index.)

ELECTRIC GAS LIGHTING APPARATUS.

No. 45813.



Showing Interior Mechanism.

THE "ADVANCE" AUTOMATIC BURNER.

In this burner we have eliminated mechanical and electrical defects which exist in other automatics, and have added new features which are advantageous.

ADVANTAGES OVER OTHER BURNERS.

Magnets cannot short-circuit.
Valve mechanism is simple and effective.
Hard rubber insulation throughout.
Binding posts are extra long and cannot twist.
The smallest operative automatic.
Requires the least battery power.
Can be attached to fixture without danger of deranging the mechanism.
Extended Core Heads increase "pull" on armature.
Means of opening valve and igniting burner with a match should battery power give out. (See our Automatic Cut-out.)
Yellow insulating bushings instead of black for leading-in wires improve the appearance of the automatic on the fixture.

Code Word.	List No.		List Price. Each.
Zuhil	45813	.....	$6.00

THE "ADVANCE SAFEGUARD" AUTOMATIC.

Patented.

The only device ever invented which gives positive assurance, after pressing the dark button, that the gas has been completely turned off.

The greatest drawback to the use of automatic burners has been the fear of danger should the operation of the armature extinguish the flame and fail to entirely close the gas valve.

When a Safeguard automatic is extinguished, by pressing the dark button of the special key, a small incandescent lamp in the push-button plate (as shown in cut) lights. This signal indicates a positive closing of the gas valve, and if the lamp does not flash, or is very dim, the regular key on the fixture should be used to turn off the gas until a competent electrician has inspected the system.

The signal lamp is on a separate circuit, which can only be closed at the burner by the movement of the armature **after the valve is completely closed.**

Note.—The Advance Acetylene, Welsbach and Candle Automatics can be furnished with this device.

No. 45814.	Zuhim	45814	7.00

ADVANCE SAFEGUARD AUTOMATIC BURNER KEYS.

Zabevuz	50637	2 Button.....	1.00
Zabewa	50638	4 Button.....	1.30
Zabewab	50639	6 Button.....	1.60

Safeguard Keys must always be ordered with Safeguard Automatic Burners.

ELECTRIC GAS LIGHTING APPARATUS.

ADVANCE STEM BURNER.

No. 45685.

The increased demand for this burner and the decrease for other styles plainly shows it to be the most desirable. Operating, as it does, in a similar manner to a gas cock, users readily become accustomed to its operation. When the key is turned for lighting the electrodes make contact, which creates a spark, thus igniting the gas. When extinguishing it, or turning it down, which is possible with the Advance style only, the movable electrode does not touch the fixed one, thus eliminating all possibility of short circuiting the burner after it has been lighted. The easy method of operating prevents bending of fixtures, as was the case with the old style pull burner. The saving in gas, owing to the graduated flame feature, makes the Advance type the cheapest burner on the market.

Code. Word.	List No.		Each.	List Price, Per doz.
Zugah	**45685**	Advance burner with Stem, polished brass	**$1.70**	**$19.20**
Zugak	**45686**	Advance stems only	**.20**	....

No. 45687.

ADVANCE SIDE LEVER BURNER.

This burner is similar to the one described above, with the exception of the manner in which the stem is attached. It is applicable in cases where the regular style might mar the appearance of the fixture, or when it is not desirable to drill through a large Bobeche.

Zugal	**45687**	Advance Lever Burner, polished brass	**1.60**	**18.00**

We can fit Advance burners with horizontal stems upon request.

No. 45688.

ADVANCE THUMB COCK BURNER.

We have substituted the Advance burner mechanism in place of the old method of operating this burner. There are a number of cases where this burner will be found particularly useful.

Zugam	**45688**	Advance Thumb Cock Burner, polished brass	**1.30**

ELECTRIC GAS LIGHTING APPARATUS.

CANDLE BURNERS.

ADVANCE CANDLE BURNERS.

Ratchet Candle Burner.

Advance Candle Burner.

The mechanism of this style is very simple and positive, containing no delicate parts. The special lift-over device prevents short circuiting at the electrodes when the gas is being extinguished.

Code Word.	List No.		List Price. Each.
Zabewax	50654	.....	$3.50
Zabewaz	50655	Special fitting.....	4.00

NO. 20 SIMPLE CANDLE BURNER.

Zabewe	50656	With slip and without chain pull.	2.50
Zabeweb	50657	Special fitting.....	3.00

NO. 22 RATCHET CANDLE BURNER.

Zabewed	50658	With slip and without chain pull.	3.00
Zabewef	50659	Special fitting.....	3.50

ADVANCE CONCEALED AUTOMATIC CANDLE BURNER.

Exposed Burner.

Concealed Burner.

A practical automatic candle burner, which would avoid the unsightliness of the automatic of ordinary size when fitted to the candle burner, has been a long felt want. There is no doubt but that the use of this class of burners has been very much restricted, owing to the lack of uniformity of all burners on chandeliers or fixtures when the short slips and large shells of the regular automatic burner are used. These disadvantages, however, are entirely overcome in this new "concealed" automatic candle burner.

Zabeweg	50660	.....	8.50
Zabeweh	50661	Special fitting.....	9.00

ADVANCE EXPOSED AUTOMATIC CANDLE BURNER.

Zabewek	50662	.....	8.50
Zabewel	50663	Special fitting.....	9.00

ELECTRIC GAS LIGHTING APPARATUS.

"ADVANCE" WELSBACH ATTACHMENT.

STYLE "A" STEM ATTACHMENT.

The style "A" attachment is now our only stock style of stem attachment for use with incandescent burners, as the No. 33 Welsbach burners which required our style "C" is no longer manufactured. The style "A" operates successfully with the new Welsbach styles No. 61 and No. 71, as illustrated herewith, and can also be used with similar types manufactured by other concerns. We send full directions for cutting out the galleries so that our attachments will fit properly, but if customers prefer galleries may be forwarded to us and we will cut them out at a slight additional charge. If special incandescent burners are to be used requiring different attachments it will be necessary to send us that part of the burner as illustrated herewith, and after an examination we will submit quotations on the cost of manufacturing attachments suitable to operate such burners. We do not handle glassware or mantles of any kind.

Code Word.	List No.		List Price, Each.
Zacatir	16622	Style "A" Welsbach Attachment.....	**$2.00**
Zacatis	16623	Style "D" Welsbach Attachment, for gasolene gas.....	**2.30**
Zacatit	16624	Style "E" Welsbach Attachment, for natural gas.....	**2.50**

"ADVANCE" AUTOMATIC WELSBACH ATTACHMENT.

This instrument fulfills a long felt want in the incandescent burner line and is a simple and practical method of igniting this style of burner. Pressing the white button of the key on the wall serves to open both the main and auxiliary valves, at the same time operating the circuit breaker. A spark created ignites the gas in the auxiliary tube, which shoots up and lights the gas in the attachment. This can be adapted to use with the No. 61 or No. 71 Welsbach burners and many other styles of incandescent burners.

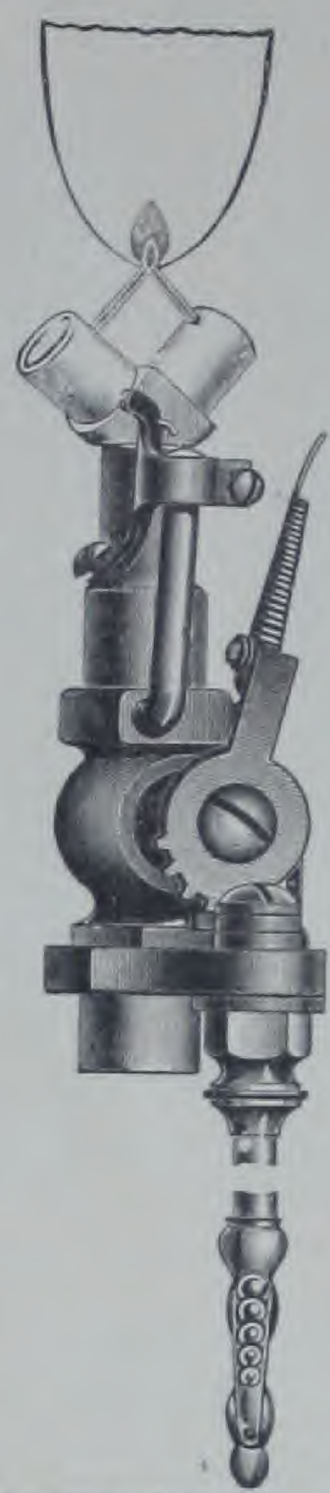
Zacativ	16625	Style "F" "Advance" Automatic Welsbach Attachment for regular gas...	**8.00**
Zacativw	16626	Style "G" "Advance" Automatic Welsbach Attachment for gasolene.....	**9.00**
Zacatix	16627	Style "H" "Advance" Automatic Welsbach Attachment for natural gas...	**9.00**

We can supply at a slight additional charge the regular "Advance" Stem and Automatic Burners for natural gas. Prices on application.

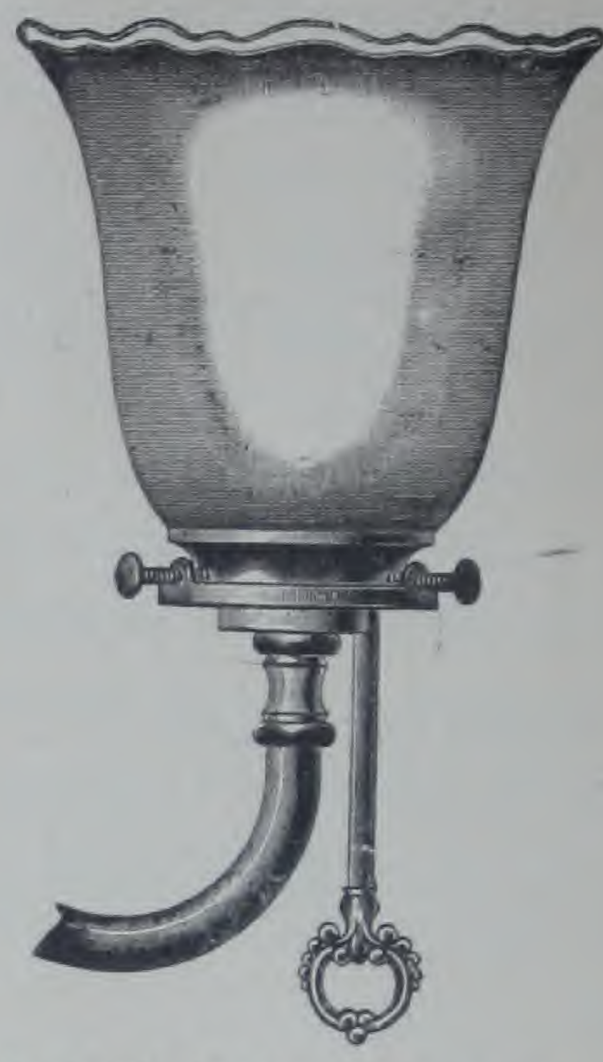
ELECTRIC GAS LIGHTING APPARATUS.

THE "ADVANCE" STEM-STYLE ACETYLENE BURNER.

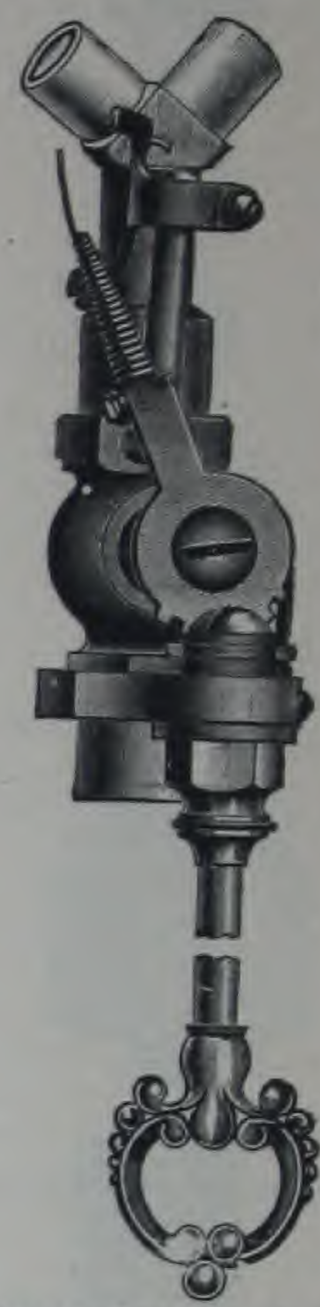
Pat. June 30, 1896.
Other patents allowed.



Lighting operation completed: gas at full flame; pilot light extinguished.



Style "B" for 2¼ in. Shade Holder.



Burner Extinguished. Always indicated by this position of key.

The increased use of the new gas, acetylene, and the many inquiries for an electric igniting device, have led us to produce this new burner. The necessity of using a pilot tube instead of the ordinary method of ignition, and the fact that the valve must be absolutely tight or the pungent odor of the gas will be immediately discovered, require the manufacture of a burner of the highest type. The assurance of a perfect operating burner, and the fact that there is a constant saving of gas effected by its use, more than compensate, however, for the increased cost of this burner over other styles.

The operation of the burner is as follows: on turning the key, the gas is admitted to both the pilot tube and the burner proper; the movable electrode passing the fixed electrode on the pilot tube creates the spark which ignites the gas issuing from the same, which in turn lights the main burner. The continued turning of the key extinguishes the gas at the pilot tube and brings the burner proper to full flame. On turning the burner down, the main burner can be extinguished, leaving the pilot tube ignited for use as a night lamp. This is an important feature, as it is impossible to reduce the flame of the ordinary acetylene burner without rendering the burner inoperative, owing to carbonization. No short circuit will occur on turning the burner down, as the electrodes do not come in contact

We use what is considered one of the best acetylene tips, but can fit burners with other tips at the regular price, when tips are sent with orders. As no portion of our mechanism is attached to the acetylene burner the latter can be readily removed for cleaning or replaced by a new one should it become broken.

Orders are filled with 4-inch stems, but stems can be furnished 2, 3, 6, 8 or 10 inches long when specified.

Code Word.	List No.		List Price, Each.
Zukak	45866	Style "A" for regular 3¼-inch Shade Holder.....	$2.50
Zukal	45867	Style "B" for 2¼-inch Shade Holder.....	2.50

ELECTRIC GAS LIGHTING APPARATUS.

THE "ADVANCE" VIBRATOR ACETYLENE BURNER.

Patented.

No. 45811.

The mechanism of this burner is composed of the sparking device of the automatic described below, without the valve for turning on the gas. The gas is turned on at some point more or less distant from the burner, and is lighted by the spark mechanism of the burner connected with a push-button conveniently placed. The gas must also be turned off by hand. A number can be lighted at one time by a single pressure of a push-button. It is, therefore, especially applicable for use in show windows, where match or taper ignition is so dangerous, for lighting burners of chandeliers in halls and churches which are difficult to reach, and other work of a similar nature.

While on tests we have lighted over twelve burners at one time, we do not advocate placing more than this number on a circuit. A hall or church having, therefore, 60 burners, distributed on five chandeliers, and not over twelve burners to each chandelier, would require five circuits.

In this burner, as with our other styles of acetylene burners, the mechanism is entirely separate from the acetylene burner or tip.

Code Word.	List No.		List Price, Each.
Zuhih	**45811**	Advance Vibrator Burner, fitted with Acetylene tip.....	**$4.50**

IMPROVED "ADVANCE" ACETYLENE BURNER.

Patent Pending.

No. 45812.

In this new burner the pilot tube of the old style, with its complications and liability of becoming inoperative, has been superseded by a simple mechanism which gives perfect satisfaction.

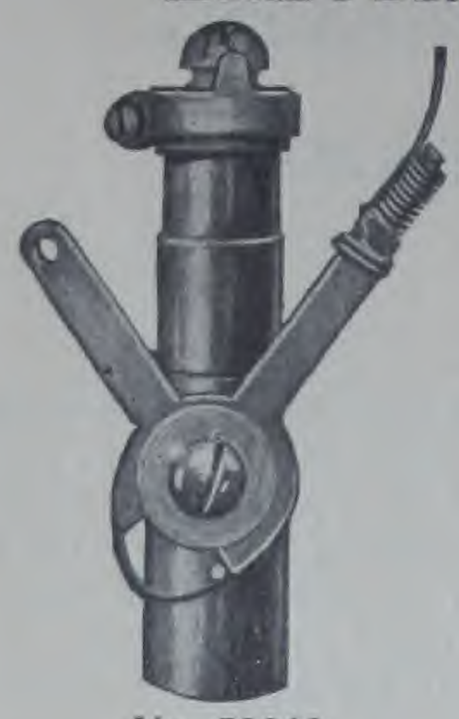
The Burner operates as follows: The armature which controls the sparkling mechanism operates in conjunction a tube, one end of which is brought opposite the burner orifice, conducting the gas to the sparking device, igniting it and lighting the main burner by contagion.

The tube then drops back by gravity, and remains in its normal position at a sufficient distance away not to affect the flame.

Zuhik	**45812**	Advance automatic acetylene burner, fitted with acetylene tip.....	**8.50**

Send for special booklet on Acetylene Burners.

ELECTRIC GAS LIGHTING APPARATUS.



No. 50646.

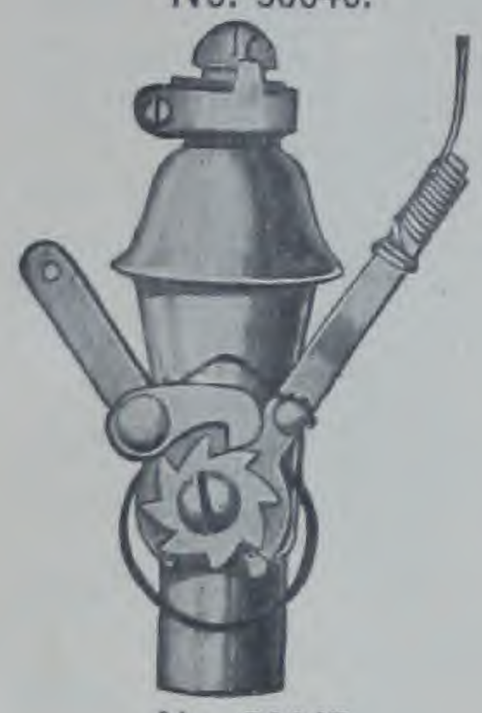
PENDANT BURNERS.

NO. 1½ SIMPLE BURNER.

Polished Brass.

Without Chain Pull.

Code Word.	List No.		List Price, Each.
Zabewam	50646	.....	.50



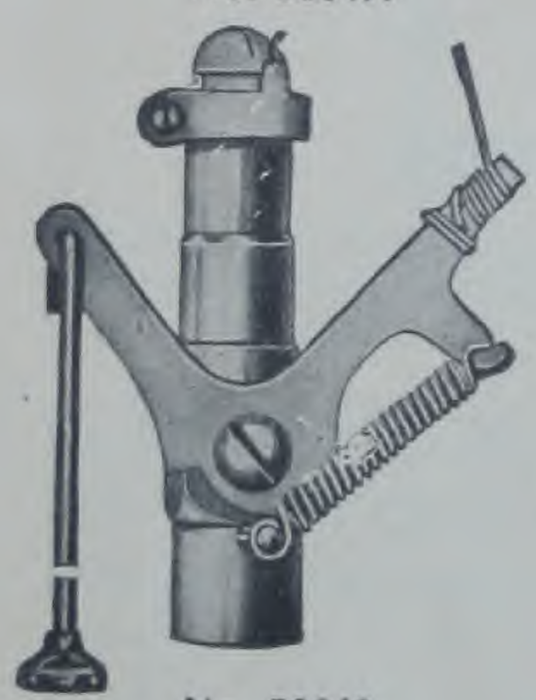
No. 50647.

NO. 3 RATCHET BURNER.

Polished Brass.

Without Chain Pull.

Zabewan	50647	.....	1.10



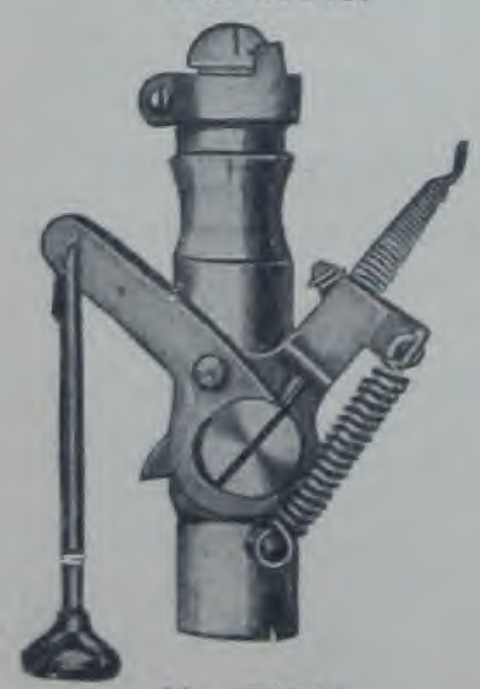
No. 50649.

NO. 17 STIFF PULL BURNER.

Polished Brass.

With 6, 8 or 10 Inch Chain Pull.

Zabewar	50649	.....	.90



No. 50648.

NO. 10 STIFF PULL BURNER.

Polished Brass.

With 6, 8 or 10 Inch Chain Pull.

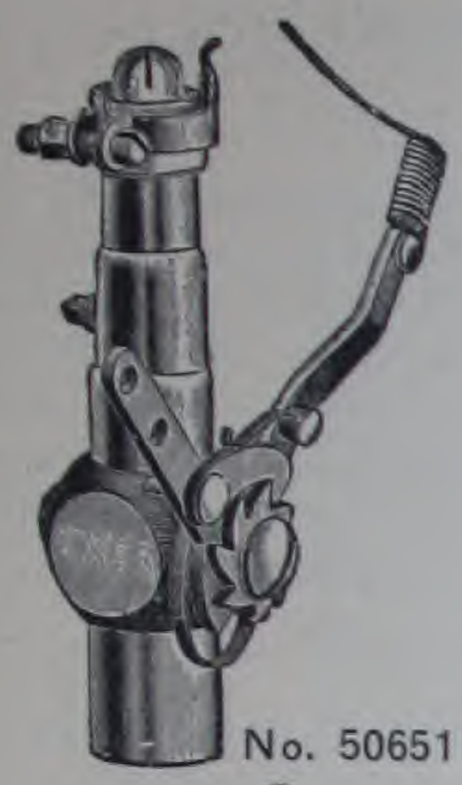
Zabewap	50648	.....	.90

The Movable Electrode does not touch the Fixture Electrode in extinguishing the gas, thereby preventing any short circuit of the battery current.

ELECTRIC GAS LIGHTING APPARATUS.

GASOLINE GAS LIGHTING APPARATUS.

RATCHET GASOLINE BURNERS.



No. 50651

Code Word.	List No.		List Price Each.
Zabewat	50651	Regular style.....	$1.50

No. 45815.

ADVANCE GASOLINE BURNERS.

Zuhin	45815	.....	2.00

No. 50652

ADVANCE GASOLINE AUTOMATIC BURNER.

WELSBACH ATTACHMENT.

Zabewav	50652	.....	9.00

No. 50653.

ADVANCE GASOLINE AUTOMATIC.

Zabewaw	50653	.....	9.00

ELECTRIC GAS LIGHTING APPARATUS.

Stem.

Candle Slip.

Upper Bobèche.

Cup.

Socket.

Nipple.

Lower Bobèche.
(All cuts ½ full size.)

CANDLE-BURNER FITTING.

We have been led to make the following explanation of the details of special candle-burner fitting by the frequent neglect on the part of customers to send proper parts and instructions when ordering. Illustrations on this page show the different portions of the completed burner which appears on the succeeding page. They are frequently made with fewer parts, but a burner to be termed a candle burner must have at least a stem a socket and a candle slip.

THE STEM.

The stem which comes with the original candle burner is discarded and one of our own manufacture substituted in fitting candle burners with gas-lighting attachments.

THE CANDLE SLIP.

This portion of the burner is made both plain and twisted and sometimes has a bulb at the bottom. It is furnished in different lengths, diameters and thickness of wall, which affects their availability for use with electrical attachments.

THE UPPER BOBECHE.

This is generally made of glass and rests in the socket, being held in place by the candle slip which it surrounds

THE CUP.

This piece fits into the socket and has a recess which serves to hold and steady the candle slip.

THE SOCKET.

This part is intended to hold the cup and is invariably made of metal of various shapes and designs.

THE NIPPLE.

This part, when furnished, comes between the bobèche and socket, and is always discarded, unless otherwise advised, in fitting, as it is replaced by our burner body.

THE LOWER BOBECHE.

Metal is as a rule used for the lower bobèche. It is made in many styles of ornamentation and held in place, when the burner is screwed on to the fixture, by the fixture nipple.

CANDLE-BURNER FITTING.

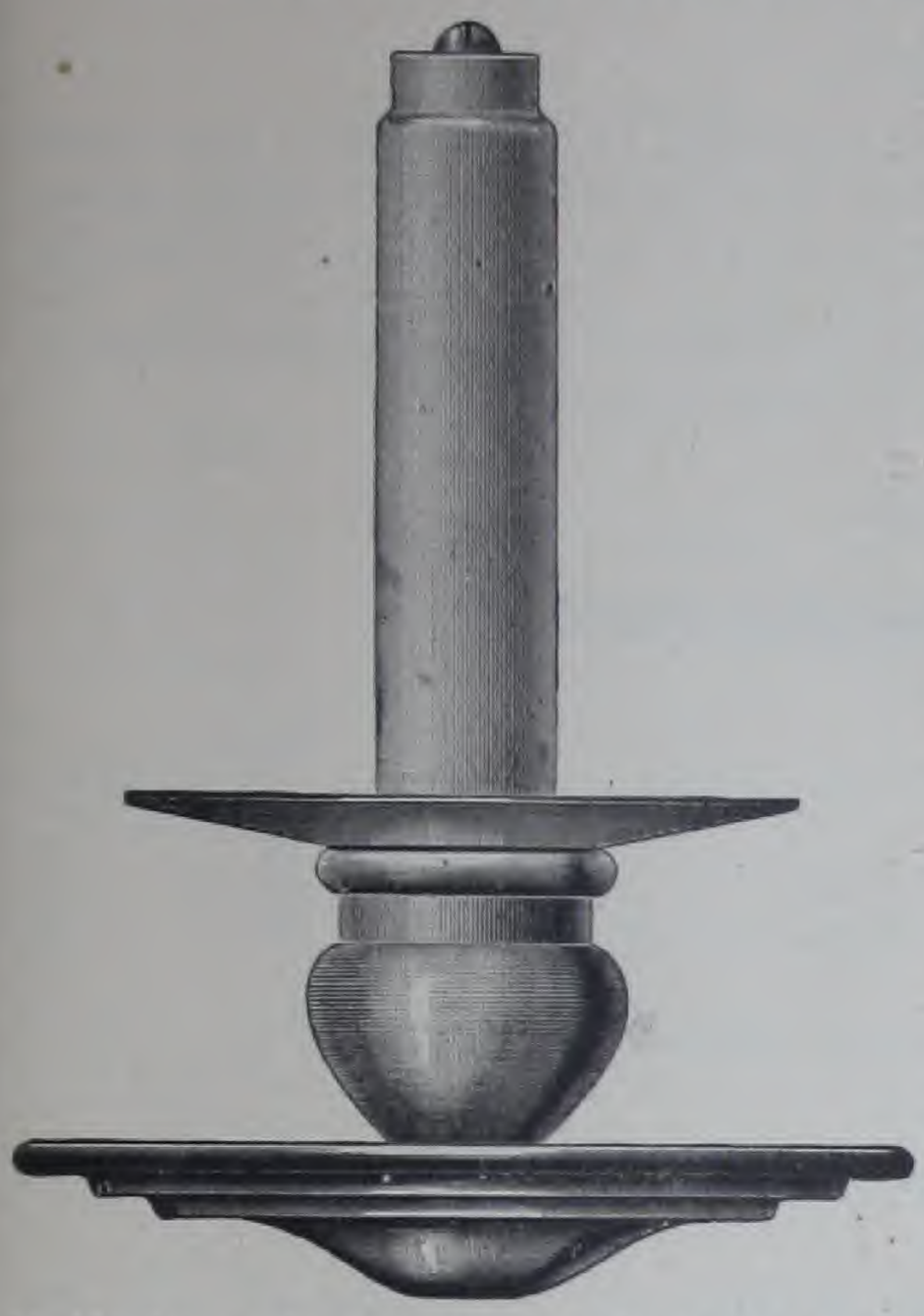
Code Word.	List No.		List Price, Each.
Zugom	45742	Fitting Simple Burners	$3.00
Zugon	45743	Fitting No. 3 Burners	3.50
Zugop	45744	Fitting No. 10 Burners	3.50
Zugor	45745	Fitting Advance Burners	4.00

AUTOMATIC CANDLE-BURNER FITTING.

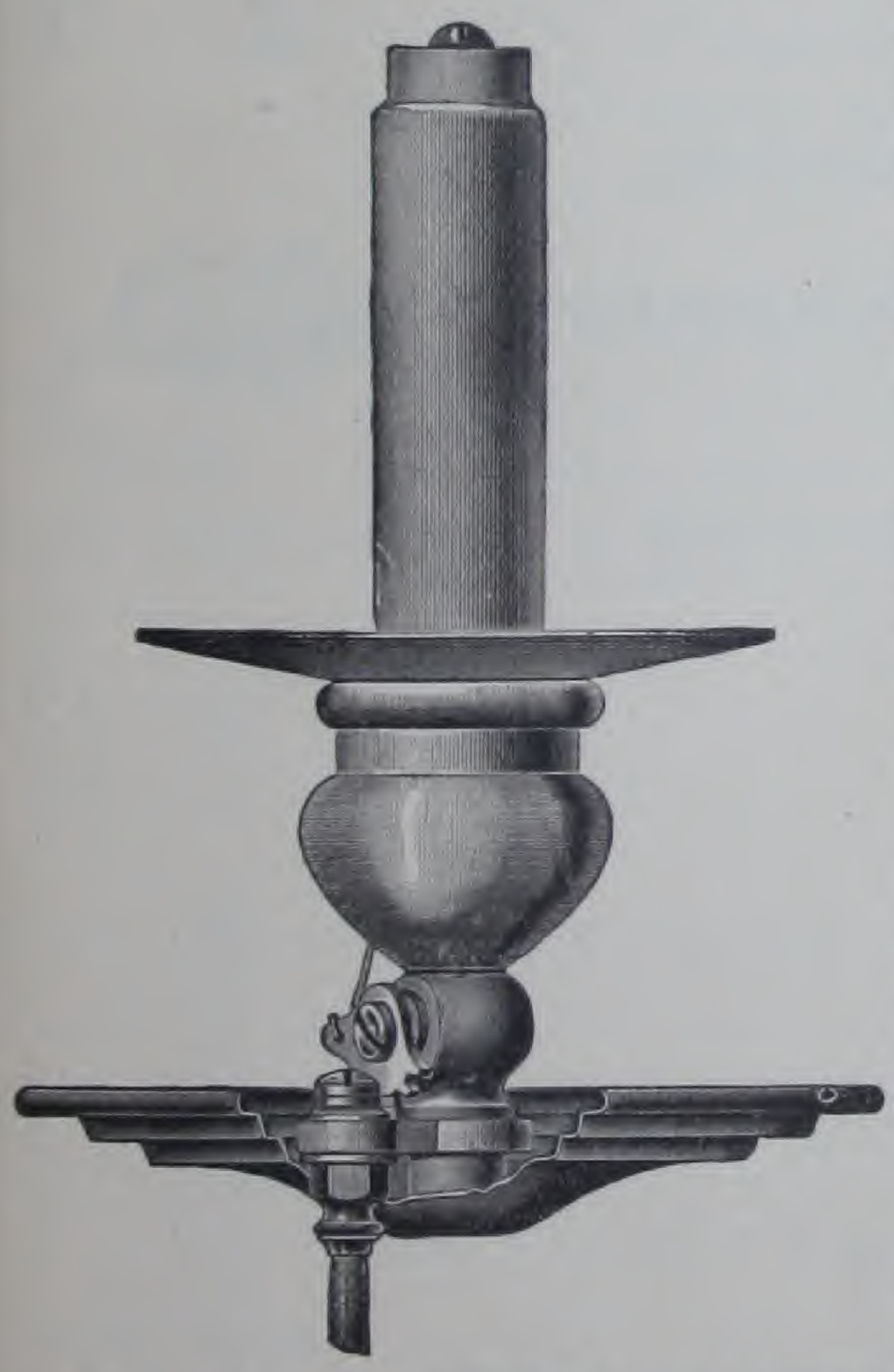
We can give no rule for fitting automatic candles, and unless otherwise instructed use our own judgment as to the arrangement of parts.

Zugos	45746	Fitting "Advance" Automatic Burners	9.00

ELECTRIC GAS LIGHTING APPARATUS.



Half-size cut, showing parts on opposite page assembled.



The same burner fitted Advance, showing reduction in length of candle slip.

CANDLE-BURNER FITTING—(Continued.)

The parts of the candle burner on the preceding page are shown re-assembled in the upper cut on this page, while the lower illustration represents the same burner fitted with an Advance Burner attachment. It will be seen that the original length "over all" has been preserved and the candle slip shortened.

Customers will facilitate the filling of candle-burner orders by noting the following:

CANDLE SLIPS AVAILABLE FOR FITTING.

The inside diameter of the candle slip must be large enough to admit the stem and working parts used in connection with the different styles of our burners. Ratchet and No. 10 Burners require slips ⅝ inch inside diameter; the Advance, 11-16 inch inside diameter. As slips of the same style are of different sizes, those of the largest **inside** diameter should be sent.

When colored or fancy slips sent are too small to be fitted successfully we furnish white slips at no extra charge, and notify customers that original slips can be duplicated in the proper size, at an expense of from 15 cents to 50 cents each, but it must be understood that it requires from one to three weeks to furnish same, and that we cannot be held accountable for delays on the part of the candle-slip manufacturer.

We assume no responsibility for the safe arrival of candle slips, nor the breakage in cutting same, which sometimes occurs, however careful the workmen may be.

LENGTH OF COMPLETED BURNER.

Directions should be sent with each candle burner, stating length desired "over all" after burner has been fitted. The No. 3 and No. 10 Burners cannot be fitted shorter than 5 inches, the Advance shorter than 4¼ inches. When orders do not so state, we shall assume original length is to be preserved. Preserving original length generally results in shortening the candle slip, owing to the fact that the nipple furnished with original burner is always discarded by us, and our attachment, which takes its place, is generally longer.

LENGTH OF BURNER ATTACHMENT.

The attachments we use in making candle burners are of the following lengths: Advance, 1⅜ inches; No. 3 Ratchet and No. 10 Stiff Pull, 1⅝ inches. The Simple (no valve) Burner does not require an attachment, but is furnished with a nipple if one is not sent. The reduction made by us in the length of the candle slip after fitting (if the original length of burner is to be preserved) can be ascertained as follows: Deduct from the length of slip the difference between the length of nipple and the length of our attachment. If the burner as originally made contains no nipple, the candle slip will be reduced the full length of our attachment. Example.—A candle burner with a ½-inch nipple fitted Advance, which has a 1⅜-inch attachment, would necessitate reducing the length of candle slip the difference between these dimensions, or ⅞ inch.

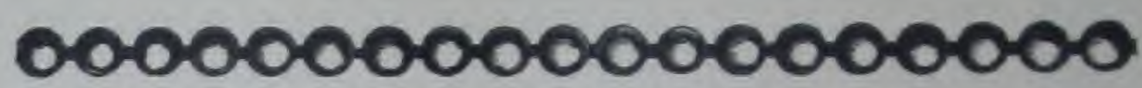
PARTS TO SEND.

Candle burners should be sent to us complete, that is, with all parts that are supplied by the fixture manufacturers, and mistakes will be guarded against if customers will make a separate package of each burner, attaching a tag, upon which explicit directions are given for fitting. We will supply tags upon request.

CHAIN AND PULL MATERIAL FOR HAND-LIGHTING BURNERS.

We are the largest manufacturers of this line of material in the country. Our Chain Pulls are made from the best quality of Bead Chain and will not break in ordinary use. Dipped and lacquered material is much better than so-called "gilt" metal, as it is the gilt, subjected to a cleansing process and then lacquered, which retards discoloration. The gold-plated chains and pulls have an extra heavy deposit of gold and are finely burnished Purchasers should consider quality when ordering this class of goods.

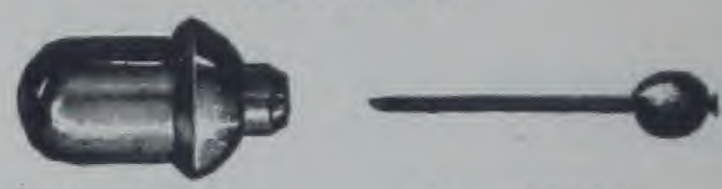
BEAD CHAIN.



No. 45535.

Code Word.	List No.		List Price, Per Yard.	In 100 Yard Lots.
Zudez	45535	Bead Chain, gilt	$ .28	$ .24
Zudi	45536	Bead Chain, gold or nickel-plated	.38	.33
Zudib	45537	Link Chain, double, gold or nickel-plated	.20	.16

ACORNS.



No. 45538. No. 45541.

			Per Doz.	Per 100.
Zudid	45538	Solid Brass, dipped and lacquered, for Bead Chain	.40	3.00
Zudif	45539	Solid Brass, gold or nickel-plated, for Bead Chain	.72	5.00
Zudig	45540	Solid Brass, gold or nickel-plated, for Link Chain	.96	6.00
Zudih	45541	Cups and Pins, gilt, for Bead Chain	.20	1.00

CHAIN PULLS, Complete.

No. 45542.

STYLE A.

Bead Chains, with solid Acorns, and Pins attached to the Chains, the whole gold or nickel plated.

		Length.	Per Doz.
Zudik	45542	4-inch	1.68
Zudil	45543	6-inch	1.92
Zudim	45544	8-inch	2.16
Zudin	45545	10-inch	2.40
Zudip	45546	12-inch	2.64

STYLE B.

Bead Chains, same as Style A, only dipped and lacquered. Plated Chains always sent unless specially ordered otherwise.

Zudir	45547	4-inch	1.44
Zudis	45548	6-inch	1.68
Zudit	45549	8-inch	1.92
Zudiv	45550	10-inch	2.16
Zudiw	45551	12-inch	2.40

STIFF PULLS.

			Each.	Per Doz.
Zudix	45552	6-inch and 8-inch Stiff Pulls, for No. 10 Regular Burner	.12	1.20

Special finishes on Chain Pulls to order.

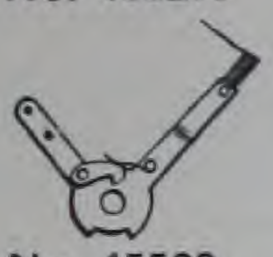
DUPLICATE PARTS OF PENDANT BURNERS.

No. 45524.

No. 45525.

No. 45526.

No. 45527.


No. 45528.

No. 45529.

Code Word.	List No.		List Price, Per Doz.
Zudek	45524	German Silver Wipe Springs for Hand-Lighters..	.40
Zudel	45525	Pawl Spring.....	.20
Zudem	45526	Brass Collars with screws, nuts, platinum electrodes and asbestos insulation, used on Pendant Burners, complete.....	3.60
Zuden	45527	Arms for Hand-Lighters, without wipe spring, pawl, or pawl spring.....	1.80
Zudep	45528	Arms for Hand-Lighters, with wipe spring, pawl, and pawl spring, fitted.....	2.40
Zuder	45529	Retractile Arm Springs, for either style burner...	.40

DUPLICATE PARTS FOR "ADVANCE" AUTOMATIC BURNERS.

			List Price, Each.
Zudes	45530	Collars	.60
Zudet	45531	Vibrating Rods.....	.40

RETURN-WIRE COLLAR.

No. 45532.
Cut full size.

By using this Collar a much better connection can be made than by fastening the return-wire used with combination fixtures between the burner and the bushing.

Zudev	45532	Per dozen.....	.72
Zudew	45533	Per 100.....	4.00

No. 45534.
Cut ½ Size.

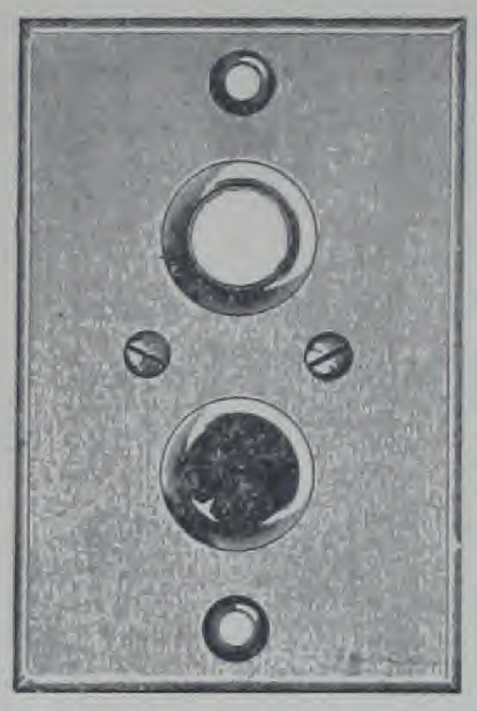
WHITE LEAD.

A convenient means of carrying white lead is in a collapsible tube, as shown in cut. We sell a grade prepared specially for fixture use.

Zudex	45534	Each	.20

ELECTRIC GAS LIGHTING APPARATUS.

KEYS FOR OPERATING AUTOMATIC GAS BURNERS.



No. 22309.

STYLE "A"—METAL KEY.

Our metal gas-lighting keys are finely finished, have best quality pearl buttons, genuine German silver springs, raised strap for battery connections, and are made with a wide margin around the wood back.

Furnished in nickel plate only, except on special orders.

Code Word.	List No.		List Price, Each.
Zabokik	22309	2-Button Key, 1 auto	$0.55
Zabokil	22310	4-Button Key, 2 auto	.85
Zabokim	22311	6-Button Key, 3 auto	1.20
Zabokin	22312	8-Button Key, 4 auto	1.60
Zabokip	22313	10-Button Key, 5 auto	2.20
Zabokir	22314	12-Button Key, 6 auto	2.70

No. 22315.

STYLE "D"—WOOD-BASE AUTOMATIC KEY.

This key has rubbing inside contact points, pearl buttons, and nickel trimmings. New style and elegant goods.

Made in fine finished oak bases. For other woods a reasonable extra price will be charged.

Zabokis	22315	2-Button Key, 1 auto	.55
Zabokit	22316	4-Button Key, 2 auto	.85
Zabokiv	22317	6-Button Key, 3 auto	1.20
Zabokiw	22318	8-Button Key, 4 auto	1.60
Zabokix	22319	10-Button Key, 5 auto	2.20
Zabokiy	22320	12-Button Key, 6 auto	2.70

Other sizes made to order and charged accordingly.

Suitable screws furnished with all keys.

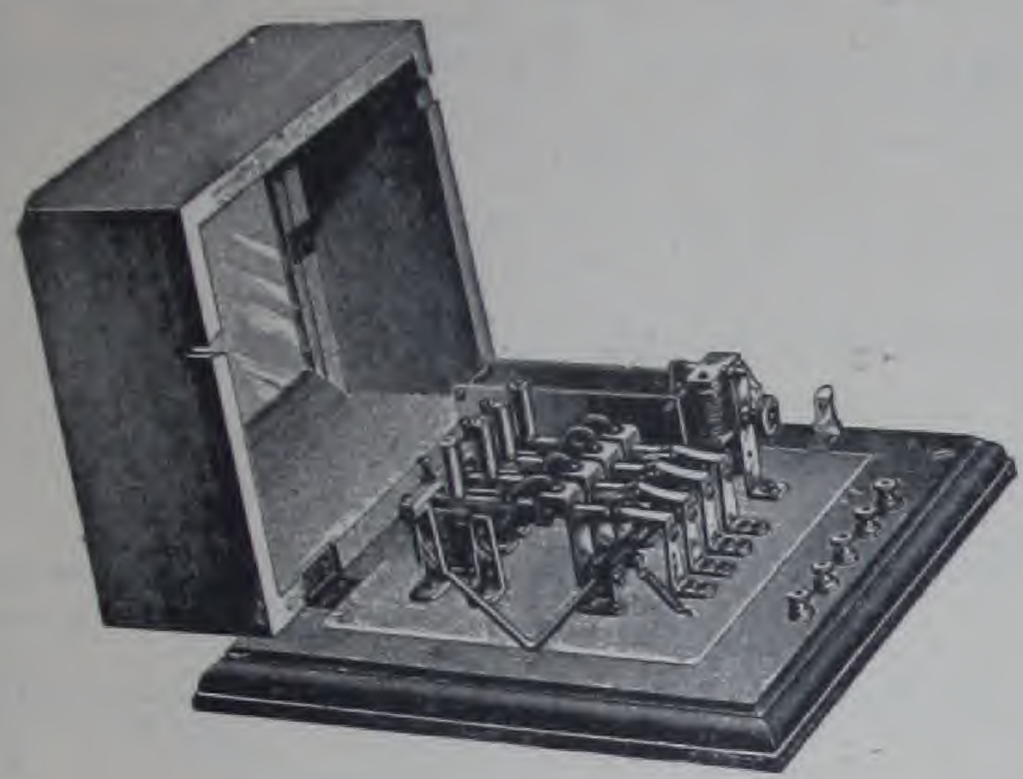
No. 22321.

WOOD MATS.

Used as a moulding tor our "A" Nickel Keys. Oak only.

Zabokiz	22321	2-Button Mat	.24
Zaboko	22322	4-Button Mat	.40
Zabokob	22323	6-Button Mat	.50

THE AUTOMATIC SECTIONAL CUT-OUT.



No. 47583.

Our Automatic Sectional Cut-Out is a most efficient adjunct to a gas-lighting system, because it not only furnishes protection against short circuits, but also saves all other circuits operative except that upon which the ground occurs.

Experience has proven conclusively that no electrical gas-lighting system should be installed unless some device is used which will give an alarm or cut in case of a ground.

Numerous instruments have been devised for overcoming these difficulties, but they have been either inadequate or too complicated. Relays which will cut in a bell when the circuit is closed are used to some extent, but with them the grounded wire must be cut out by hand; therefore, if no one is present or the bell is not heard, batteries necessarily soon become worthless. Main line cut-outs are also used, but the great convenience attached to gas lighting is entirely sacrificed, for while the batteries are saved the whole system must remain inoperative until the trouble is removed by an elctrician.

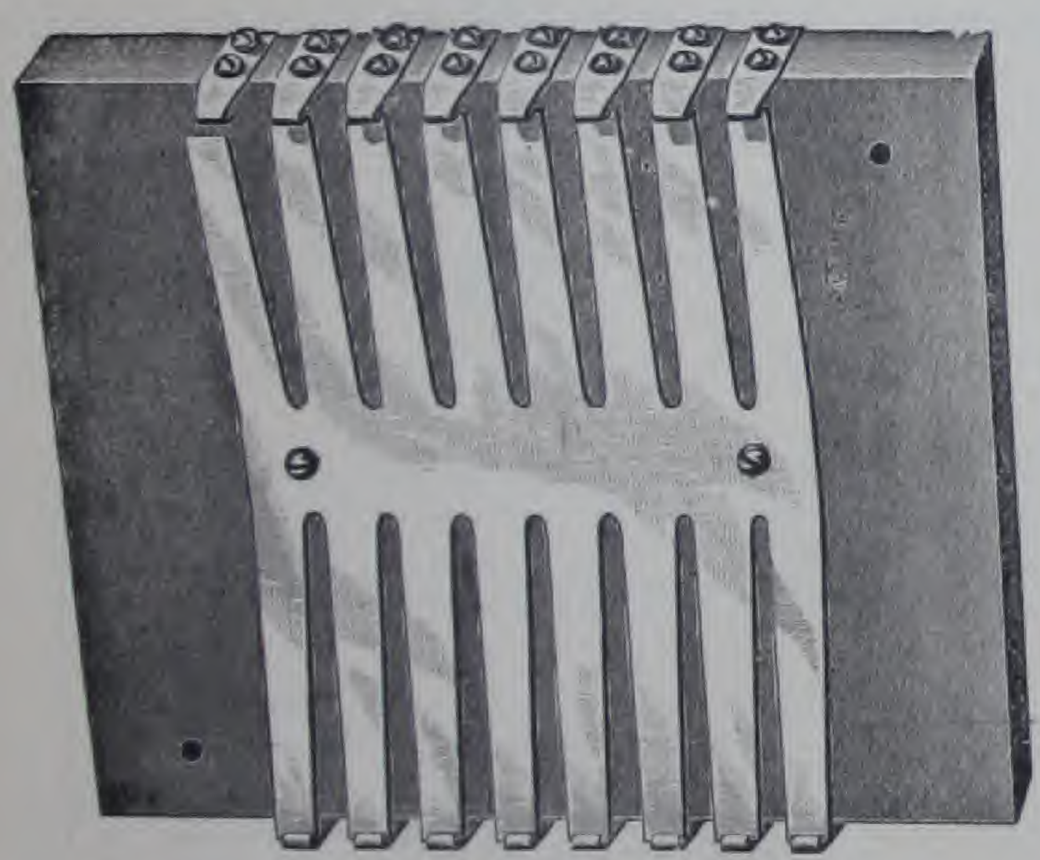
Code Word.	List No.		List Price, Each.
Zabakuf	47580	1 section	$7.00
Zabakug	47581	2 section	11.00
Zabakuh	47582	3 section	13.00
Zabakuk	47583	4 section	16.00
Zabakul	47584	6 section	22.00
Zabakum	47585	8 section	29.00
Zabakun	47586	10 section	35.00
Zabakup	47587	12 section	41.00

The cut-out is made in oak cases, with glass fronts.

Larger sizes made to order.

It is sometimes advisable to mount the cut-outs on rubber backs to prevent the possibility of warping under excessive dampness, and so throwing the mechanism out of adjustment.

THE ECLIPSE SECTIONAL SWITCH.



No. 47588.

Cut of 16-Point Switch, Size 6x7 In. Showing Contact Broken at Upper Left-Hand Spring Clip.

For all purposes where a sectional switch is required the Eclipse has exceptional advantages, among which are the following:

It occupies a small space, makes a perfect spring contact, is cheaper than an arm switch, has a single battery contact for all connections, the base board cannot warp, and there is no chance for loose contacts.

MADE IN THE FOLLOWING SIZES:

4, 6, 8, 12, 16, 20, 24 Points.

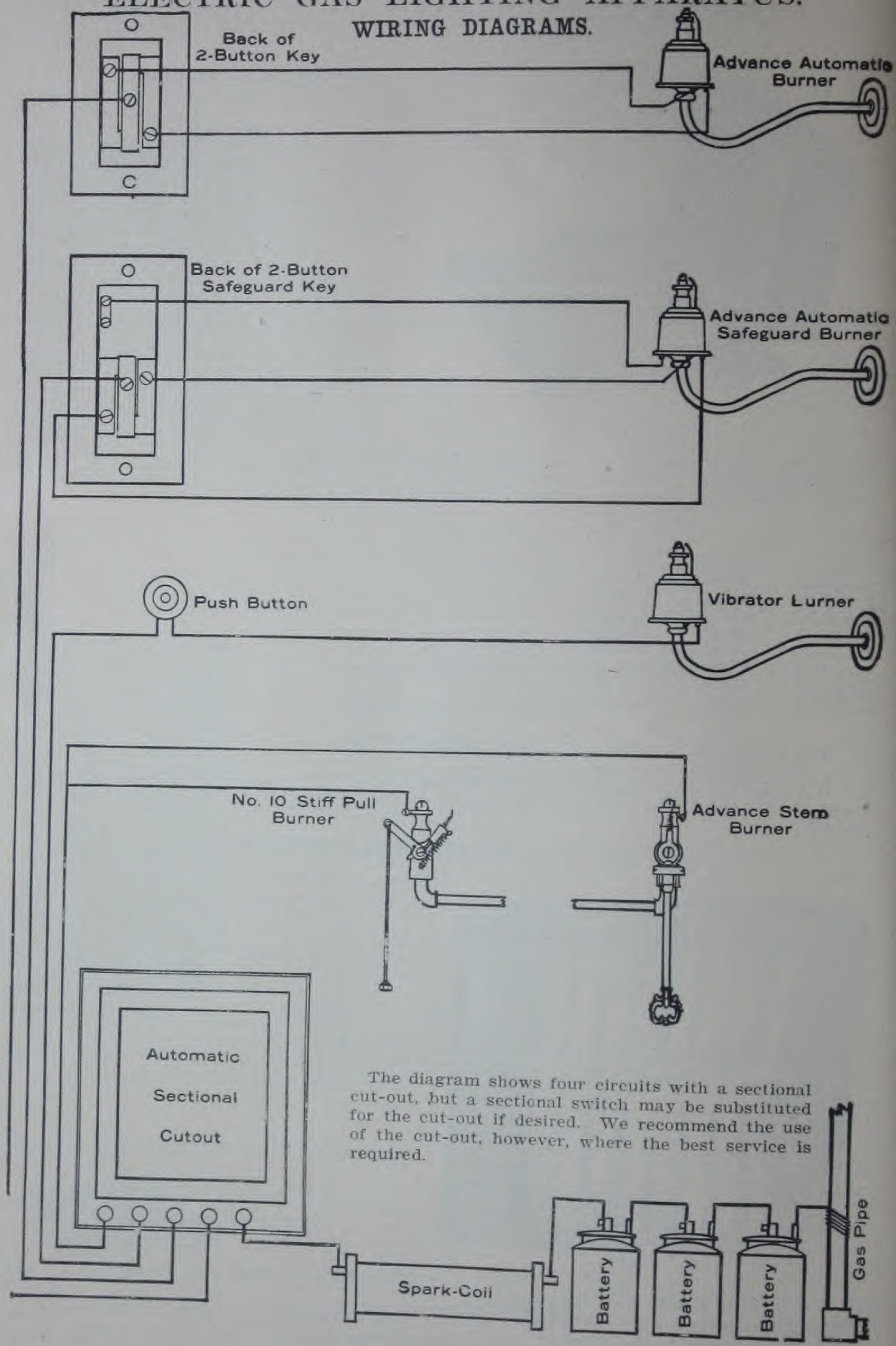
PLAIN CHERRY ONLY.

Zabakur 47588 Per point..... .14

Larger sizes to order at proportionate prices.

ELECTRIC GAS LIGHTING APPARATUS.

WIRING DIAGRAMS.



The diagram shows four circuits with a sectional cut-out, but a sectional switch may be substituted for the cut-out if desired. We recommend the use of the cut-out, however, where the best service is required.

ELECTRIC GAS LIGHTING APPARATUS.

GENERAL INSTRUCTIONS.

On the opposite page we show diagrams for the connections necessary for our burners, which we think should be perfectly clear to the fitter.

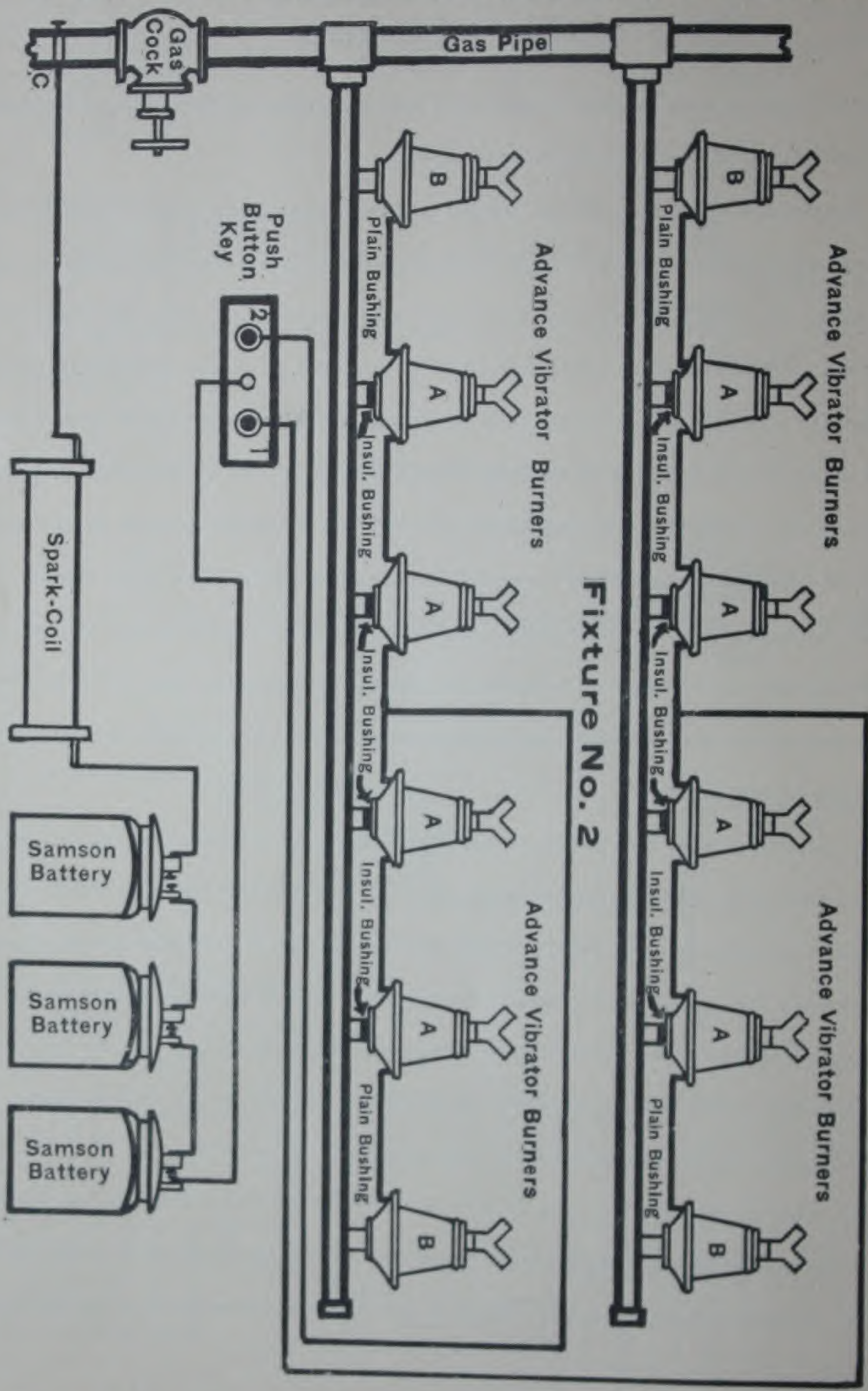
A satisfactory job of gas lighting depends largely on the quality of the workmanship. It is not that gas lighting requires such a high degree of skill, but that the various operations should be performed with much more care than is necessary or usual for a bell circuit. Care should be taken at every point that the insulation is perfect, particularly about the fixture; all joints should be carefully taped and where the wire passes through the metal of the fixture it should be liberally covered with tape. We would recommend the use of No. 16 or No. 18 damp proof insulated wire for the circuits (special fixture wire should be used about the fixture); and that the job be divided into as many circuits as possible for convenience in future tests. Our sectional cut-out should always be used on jobs of any size, as it enables the workman to immediately locate the cause of the trouble, if any, and also because it cuts out the particular circuit that is in trouble, and leaves the rest of the house operative.

We recommend that each fixture be put on a separate circuit, the wires run to a sectional switch, which will thus enable you to shut off any particular fixture in which there is trouble. In connection with our automatic sectional cut-out, the sectional switch admits of subdividing the circuits as they run to the cut-out. We would further recommend that the circuits are not divided up into rooms, as is usually done, but that part of one room and part of another should share a section of the automatic cut-out; by this means, in case of trouble on any one circuit, part of each room would still be operative.

We shall be glad at any time to give our customers information and instruction that will help them to make perfect installations, and hope thereby that electric gas lighting may be appreciated as much as it should be, and thus help the business of the electrical contractor.

ELECTRIC GAS LIGHTING APPARATUS.

WIRING DIAGRAM FOR MULTIPLE LIGHTING OF VIBRATOR BURNERS.



ELECTRIC GAS LIGHTING APPARATUS.

INSTRUCTIONS FOR INSTALLING VIBRATOR BURNERS USED IN MULTIPLE.

The wiring diagram illustrated on the opposite page shows the proper method of installing Vibrator Burners to be used in multiple and is the only practical way to light electrically a quantity of burners at one time. The Vibrator type is composed of the sparking device of the Automatic Burner, and as it has no valve the flow of gas must be controlled from a special gas cock.

The illustration shows two fixtures with six burners installed on each. The Vibrators on the fixtures are wired in multiple series of three (A, A, B), two burners A and A of each series are equipped with insulating bushings, while the third burner, B, has a plain bushing.

The wiring from the battery to the push button key is the same as in systems used for lighting an automatic burner. From one side of the battery the wire is run to the center of the push button key; from the other side of the battery the wire is run to the spark coil, and from the other terminal of the spark coil to the gas pipe, where it is grounded at C. Insulation must be removed from the wire and after the gas pipe has been thoroughly scraped the wire should be wound tightly about same. A better method is to use a ground clamp at this point, making a sure connection.

The most desirable method is to have a separate circuit for each fixture. We do not advocate placing more than 12 buttons on any one circuit, and if there is more than this number on a fixture the circuits should be divided up accordingly. The illustration shows a two button key. Button No. 1 controls circuits to fixture No. 1, while button No. 2 controls circuits to fixture No. 2.

It will be noted that a wire is run direct from each push button to each fixture and then is subdivided, running to each series of three burners. The wire is connected first to insulated burner A, from there to the second insulated burner A, and then to burner B, which is equipped with a plain bushing.

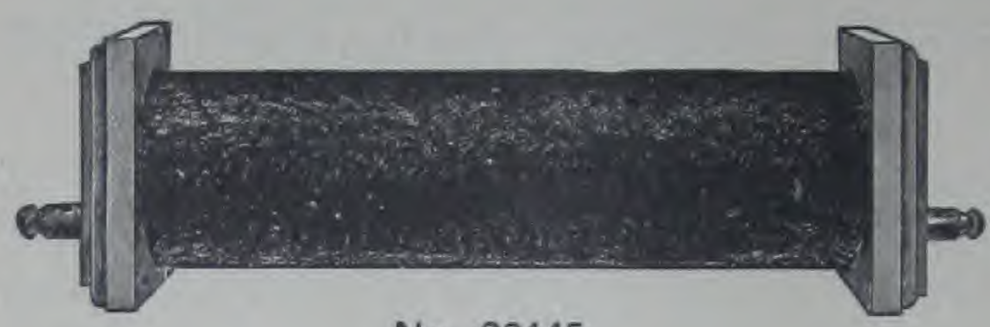
When the gas is turned on at the gas cock the push buttons No. 1 and No. 2 located in the push button key, which must be located near the gas cock, are pressed, thus igniting the gas. To extinguish the gas must be turned off at the same gas cock. This system of wiring is similar to other gas lighting systems, with the exception that instead of the current passing from the batteries through the push buttons to one burner and then returning through the gas pipe it passes through two burners with insulating bushings A, A, and then through burner B, which has the plain bushing,before making the return circuit to the battery, thus dividing up the current throughout the fixture, igniting all burners at the same time.

The No. 2 spark coil must be used with this system, and also our No. 2 or No. 3 Samson batteries, in order to insure satisfactory results. The quantity of batteries required depends on the number of burners to be ignited at one time.

The advantages of this system of lighting depend somewhat on the method of gas piping. If separate gas cocks are used for controlling the flow of gas to each fixture it is possible to light or extinguish all burners on any one or more fixtures without disturbing the remainder of the burners on the other fixtures. If but one gas cock is used it necessitates the lighting or extinguishing of all the burners which receive the gas from this gas cock.

ELECTRIC GAS LIGHTING SUPPLIES.

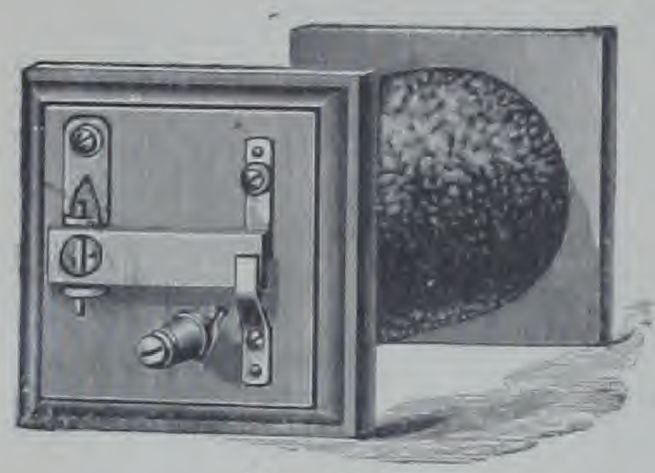
SPARK COILS.



No. 22445.

NO. 1 SPARK COIL.

Code Word.	List No.		List Price, Each.
Zabomop	22445		$3.00
Zabusef	12874	With Circuit Closing Attachment	3.60



No. 12875.

NO. 2 SPARK COIL.

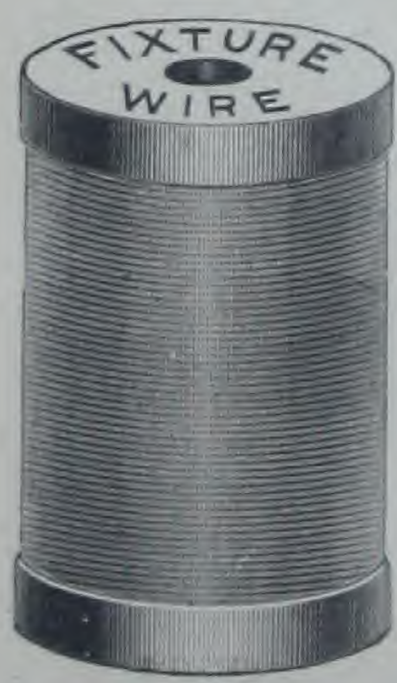
Zabomor	22446		3.50
Zabuseg	12875	With Circuit Closing Attachment	4.10
Zabuseh	12876	Circuit Closing Attachment, unmounted	.50

No. 22447.

Zabomas	22447	No. 8, 8 in. long	1.70
Zabomot	22448	No. 10, 10 in. long	2.40
Zabomov	22449	No. 12, 12 in. long	2.80

GAS FIXTURE WIRE ON 1-2 LB. SPOOLS.

STYLE A. TRIPLE WOUND AND PARAFFINED.



No. 45713.

			List Price, Per Lb.
Zugew	45713	No. 22, in yellow only	$1.80
Zugex	45714	No. 24, in yellow, brown and white	2.00

STYLE B. 4-WIND, INSIDE SILK.

Made with quadruple winding, the inner of silk and the three outer layers of cotton.

Zugez	45715	No. 22, in yellow only	2.20
Zugi	45716	No. 24, in yellow, brown and white	2.40

STYLE C. 3-WIND, OUTSIDE SILK.

Made with three windings of cotton, which is then soaked with fire-proof preparation and wound with silk

Zugib	45717	No. 22, in gold only	2.20
Zugid	45718	No. 24, in gold and white	2.40

THE No. 2 SAMSON BATTERY.

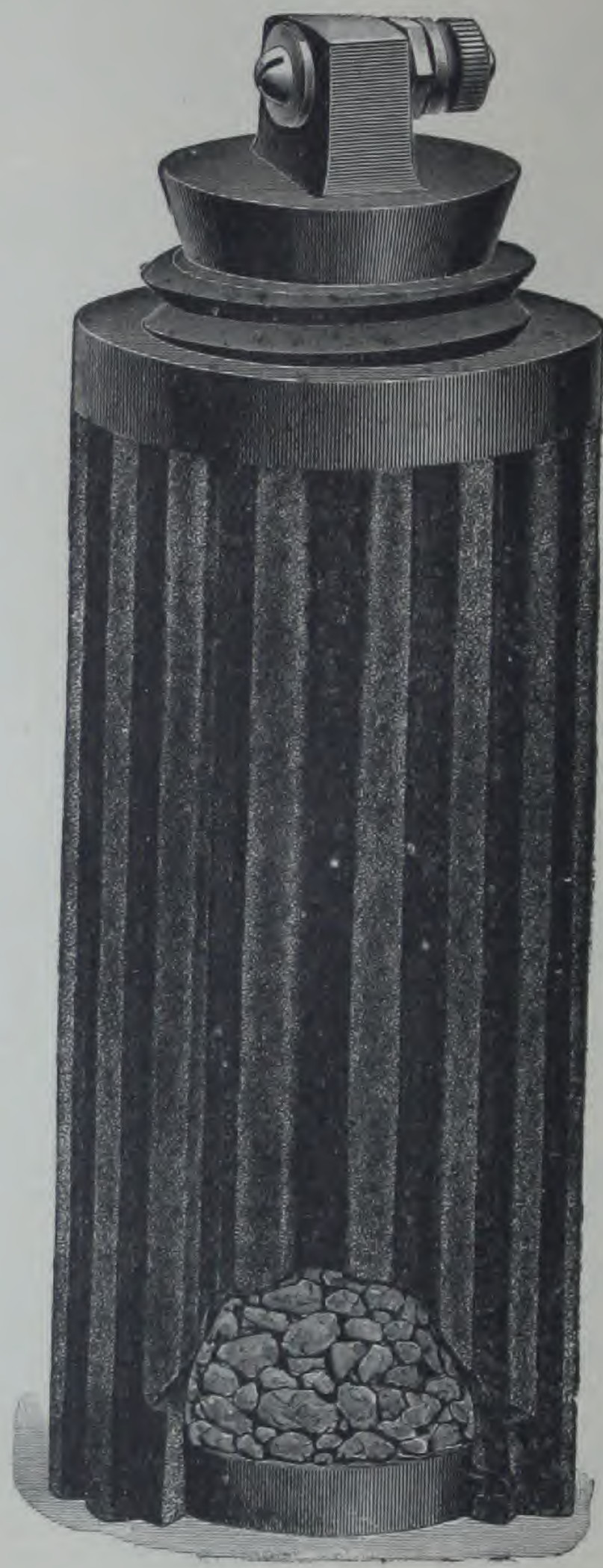
"SHIPPED SET UP."

Illustration shows new label.

"The King of Open-Circuit Batteries."

THE No. 2 SAMSON CARBON.

Illustration shows wall of carbon cut away exposing depolarizing compound.



In battery carbon production,

"The Pinnacle of Perfection."

THE SAMSON CARBON.

Patented.

The Samson Carbon is manufactured in France, and we are the exclusive owners of the same in this country. It is composed of two parts, a fluted lower portion and a threaded top carrying the binding post, which are baked into one piece in the kiln. This feature is unlike any other carbon, and is a necessary one to obtain the best results.

THE LOWER PORTION

Is a thin-walled, fluted, hollow cylinder, made from special materials and by a special process, resulting in a quality of battery carbon which, as is the case with some natural products, cannot be obtained in this country. While the crude carbon is remarkably pure, great care is taken to free it from all injurious elements, such as iron and other foreign substances, which would be liable to produce local action. The carbon mixture is subjected to a special patented process, which renders the lower portion after baking more porous than any other battery carbon ever produced.

THE TOP PORTION

Is composed of an entirely different kind of carbon from that used in the lower portion, which, after being subjected to enormous pressure, is treated when the carbon is complete in a way which renders it impervious to the creeping tendency of the solution and action of the ammonia gas.

THE COMBINED PARTS.

The upper and lower portions, after being formed, are properly baked in the kiln, after which the top of the carbon is heated red hot and plunged in hot paraffine, so that it enters into the minutest pore instead of simply collecting on the outside, as is the case with many battery carbons. The carbon made in this way has a hard, dense top and a very porous lower portion. As stated above, no other carbon is made in this manner, and it is impossible to obtain the greatest advantages when a carbon is moulded in one piece. A one-piece carbon must necessarily have a hard top to resist the internal creeping, and in consequence has a hard lower portion which is not made porous, as some carbon manufacturers seek to make the trade believe by simply granulating the surface. Open pores which can be plainly seen in the Samson are not produced by such a method.

THE DEPOLARIZER.

A combination of manganese and pea carbon is placed inside the fluted portion and held in position by a specially prepared plug which will not fall out. It is this depolarizer and its close proximity to the exceptionally porous carbon which imparts to the battery its remarkable recuperative qualities. It can be easily renewed by following directions given on a subsequent page. After the depolarizer has been placed inside the carbon the connection made of brass heavily tinned is affixed. It is composed of large, heavy parts, and includes a safety check nut.

THE COMPLETED CARBON.

The result of this thorough and necessarily expensive mode of manufacture is the production of a battery carbon which has a larger surface, longer life and greater recuperative power than any other carbon element ever manufactured, and we guarantee the completed battery will stand more hard usage and continue its service more satisfactorily than any other open-circuit battery

Length of life and recuperative ability are important factors when considering merit in Battery Carbons.

THE No. 2 IMPROVED SAMSON BATTERY.

Patented July 8, 1890, and Sept. 22, 1896.

With this issue of our catalogue we commence the twentieth year of the sale of this celebrated battery. From a small beginning it has grown in favor until it has attained the enviable position of the acknowledged leader of all batteries of its class, notwithstanding the fact that at first it received the adverse criticism of many, owing to our use of a corrugated carbon and circular zinc.

Success has been achieved through the ability of the French manufacturers to produce a porous and absolutely uniform carbon, through our persistent efforts to increase the efficiency of the battery by improving its mechanical construction, and, more important than either, through the remarkable strength and great length of life of the carbon. It is not unusal to receive information that Samson Batteries have operated combined gas-lighting and bell installations continuously for from three to five years, and given perfect satisfaction during that period,

The battery has a wide range of usefulness, operating successfully every electrical device requiring intermittent battery service, including bells, annunciators, electric gas lighting, gas engine ignition, etc., etc., and has proven eminently satisfactory for closed-circuit work in connection with telephone transmitters, so much so that it has been adopted by many telephone exchanges in all parts of the country.

To seekers for a battery for the above-mentioned service, we have no hesitation in saying that if it is possible to use an open-circuit cell the Samson will give you better satisfaction than any other.

Notable Improvements.

The improvements in the Samson consist in so joining the elements that they cannot come in contact inside of the jar; dispensing with all rubber rings or plugs; placing outside binding posts on the carbon; furnishing charges of depolarizing compound by which carbons can be easily recharged; placing Sal-Ammoniac inside of the jar, and shipping battery set up ready for immediate use. The Zinc is now re-enforced, made double thickness along each edge, with the result that it may be quite eaten through without dropping off and opening the circuit.

Imitations.

Like every other meritorious article the Samson has its imitators. The name, the label, the size (No. 2), and the form of elements have all been copied by American carbon manufacturers with some degree of success as regards appearance, but the porosity of the carbon and the results obtained from the battery have proven as dire failures in the case of the imitations as it is possible to conceive.

THE NO. 2 SAMSON BATTERY.

4½x4½x8 Inches.
No. 47571.

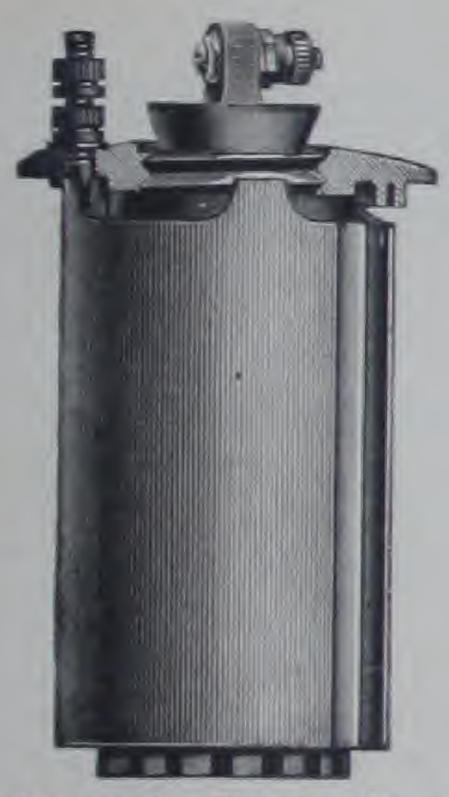
"SHIPPED SET UP."

This is the regular or circular zinc form of the battery. It is contained in a jar 4½ inches square, and is 8 inches over all. The cell has a voltage of from 1.40 to 1.47, and an amperage on short circuit of from 12 to 16 amperes. As this battery is intended solely for intermittent work, this large current is but momentary.

This cell is adapted for gas lighting, telephones, gas engines, railway signals, and all special work requiring a battery having great initial strength and capable of quick recovery after hard work. For such purposes the Samson Battery is without a rival. We would call your attention to the battery fitted with our Railroad Zinc described below.

The parts of the new style are interchangeable with the old.

Code Word.	List No.		In Lots of— 1—5	6—24	25—49	50—99
Zabakos	47571	No. 2 complete...	$1.60	$1.50	$1.46	$1.40
Zabakot	47572	No. 2, with 16 oz. Zinc	1.90	1.80	1.76	1.70
Zabakov	47573	No. 2 Carbon Vase	1.10	1.06	1.00	.95



Length, 7⅛ Inches.

THE NO. 2 COMBINED SAMSON ELEMENTS.

The principal improvement of the improved Samson consists in joining the elements and cover in such a manner that it is impossible to short-circuit the carbon and zinc. The stem of the zinc is first placed in the slot in the cover and the projections placed in the groove in the under side, the large nut is then used to firmly hold the zinc in place. The carbon is then screwed into the cover, and the result is, mechanically speaking, a one-piece battery which can be handled as such, thus dispensing with the rubber plugs and cover rings previously used.

The carbon is held half an inch away from the bottom, and as will be noticed the zinc is a trifle shorter than the carbon. This is to avoid possible bridging of salts.

Length, Including Stem, 6⅝ Inches.

THE NO. 2 SAMSON LAP-EDGED ZINC.

The improved Samson Zinc is made, as shown in cut, from a heavier stock than the old style. The edges are also reinforced, greatly increasing the life of the zinc, as the zinc will not drop until entirely consumed.

We also have an extra heavy zinc, weighing 1 pound (1-10 inch thick), used extensively for operating railroad signals and for other special work. Where an excess of heavy work consumes the zinc rapidly it is economy to use this style. The railroad zinc does not have the lap edge.

			In lots of— 1–5	6–24	25–49	50–99
Zabakow	47574	Cylindrical Zinc..	.26	.24	.22	.22
Zabakox	47575	Railroad Zinz, 16 ounces	.56	.51	.46	.46

THE NO. 2 SAMSON BATTERY.

"SHIPPED SET UP."

THE NO. 2 SAMSON COVER.

No. 45605.

The new style cover is made to receive the threaded top of the carbon, and has a slot in the side, in which rests the stem of the zinc. It is made heavier and stronger than the old style, and is not as liable to break.

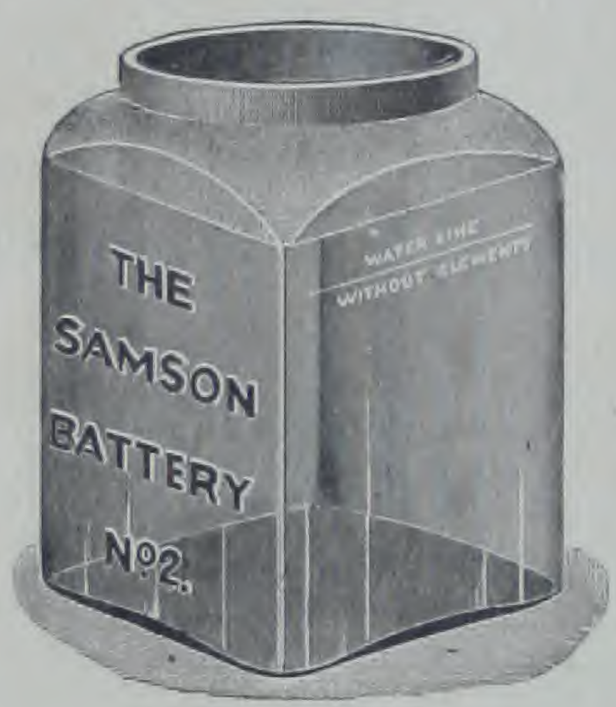
Code Word.	List No.		List Price. Each.
Zufaw	45605	No. 2 Samson Cover.....	$0.12

SAMSON SAL-AMMONIAC.

No. 45606.

A genuine imported German Sal-Ammoniac is used with the Samson Battery. We guarantee every ounce of it to be 99.83 per cent pure, the color absolutely white, and to contain no moisture. These three essentials are necessary to obtain the best results for battery purposes. We are selling a large amount of this chemical in bulk, as customers appreciate receiving the same grade whenever ordered.

Zufax	45606	No. 2 Sal-Ammoniac Charge..	.10



No. 45607.
Size $4\frac{1}{2}$x$4\frac{1}{2}$x$6\frac{1}{2}$ inches.

THE NO. 2 SAMSON JAR.

We use the strong, well annealed glass jar for the Samson Battery. It is of sufficient size to hold one quart of solution after the elements are placed in same. A water line on the side serves as a guide in filling the jar with solution.

Zufaz	45607	No. 2 Samson Jar.....	.20

"SHIPPED SET UP."

Packed for Shipment.

The illustration shows the Samson Battery packed and ready for shipment, with package of sal-ammoniac inside of jar. It is the first battery ever constructed embodying this important and desirable feature. To charge the cell, all that is necessary is to pull the elements out of the jar, carefully remove the excelsior, empty contents of bag into jar, and fill jar with water to the lower water line; thoroughly mix solution and replace elements. The great advantage of this method, especially in the case of inexperienced persons using battery, will be recognized at once.

Supply houses carrying this battery will find it requires practically no handling, as it is ready for immediate sale upon being taken from the case.

THE NO. 2 "SPECIAL" SAMSON BATTERY.

Size, 8x4½x4½ inches.

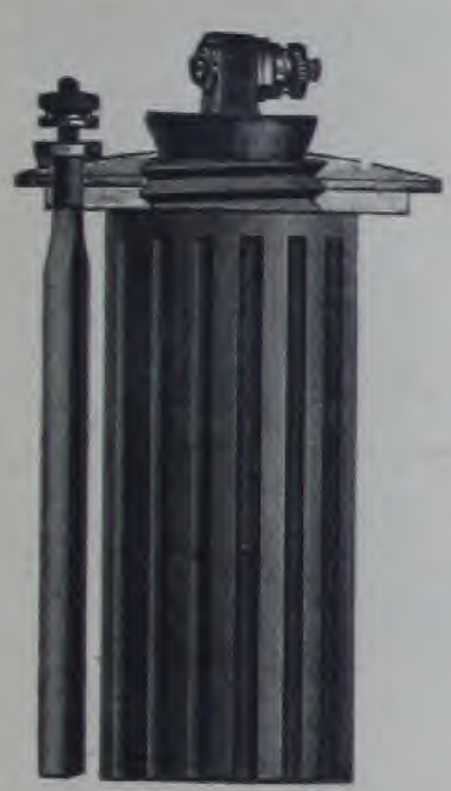
"Shipped Set Up."

The Special Samson is adapted for service where the large current delivered by the regular style is not required, but the best possible recuperative ability is necessary. It has the same dimensions and voltage as the regular style. A zinc 5¼ inches long, 1 inch wide and ¼ inch thick, made of Carr metal (which is an alloy of zinc and mercury), is used with this form. It develops a current of about five amperes.

This battery is used by a number of railway companies and is preferred by some for use with telephone transmitters.

No. 2 "Special" Samson Battery, price, same as regular style.

THE NO. 2 "SPECIAL" SAMSON ELEMENTS.



Length, 7⅛ inches.

The parts of the Special Samson are combined in the same manner as the cell described above. The flat zinc is held rigidly against the cover by the smaller nut shown in the cut, and a simple device not shown keeps the zinc from twisting. When the parts are put together the zinc stands about ⅜ of an inch away from the carbon. As will be noticed the rubber rings are dispensed with that were used in the old style.

This cell is also shipped set up, and has therefore the same advantages as the above.

THE NO. 2 "SPECIAL" SAMSON ZINC.

Length, 6½ inches.

This zinc is used with the special form of the Samson Battery. As stated above, it is made of an alloy composed of zinc and mercury, and is well adapted for some requirements, especially where a circuit includes high resistance magnets.

No. 2 "Special" Samson Zinc, price, same as regular style.

THE NO. 2 SAMSON BATTERY.

"SHIPPED SET UP."

RENEWING DEPOLARIZER.

To renew the depolarizer of the Samson Carbon is a quick, easy, inexpensive and thoroughly practical operation. Carbons short-circuited from a few hours to a day do not require treating, as a rest for a few hours generally brings them back to their original strength; but after long and steady use or extended short circuits, the depolarizing properties of the manganese are expended and the Samson Carbon then depends solely upon its porosity for depolarization.

There are two methods by which the hydrogen or polarizing gas may be expelled from the carbon, one by standing the carbon in boiling water and the other by heating over a Bunsen burner. If the former method is used, first remove the binding post and immerse in the water only to the point where the fluted lower portion joins the top. With the latter method the fluted portion is held over the flame for about three minutes, being careful not to heat the top so that the paraffine in it is melted. Using either method the plug which retains the depolarizer will become sufficiently softened to be easily removed, allowing the old depolarizing compound to be removed. The carbon is then refilled with depolarizing compound and the hole replugged with a cork stopple. Illustration shows method of replugging carbon.

Carbon Ready for Replugging.

If either of the above methods is strictly followed the result will be a carbon practically as good as new. We would suggest collecting a number of the short-circuited carbons and refilling them all at one operation. There is a process of eating out the chloride of zinc crystals, but as the directions must be explicitly followed we do not deem it best to give the same in this catalogue. We will, however, mail them upon application.

Depolarizing Compound.

DEPOLARIZING COMPOUND.

Depolarizing Compound is now put up in a neat box, as shown in cut. The package contains the requisite amount of the material to refill one No. 2 Samson Carbon, and a cork for replugging. Full directions will be found on each package.

Size, 1⅝x2¼x2½.

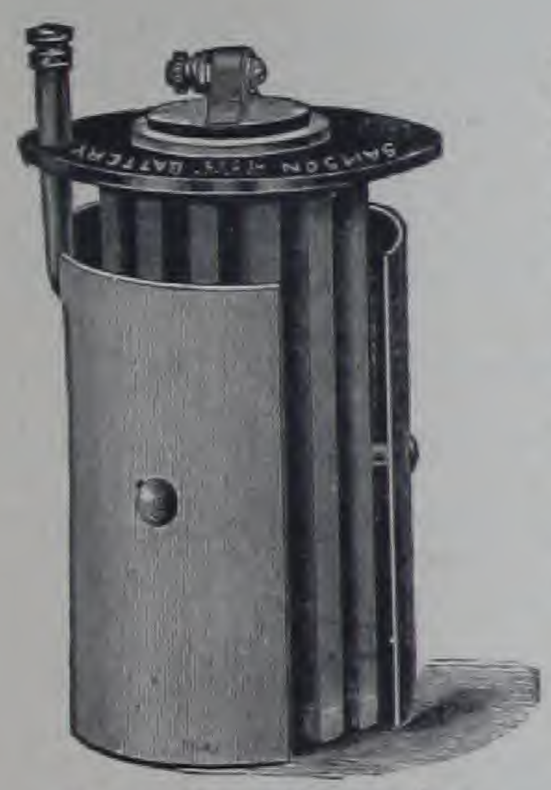
Code Word.	List No.		List Price.
Zudun	45581	Per package	$0.10

THE NO. 1 SAMSON BATTERY.

Size 7⅛x4x4 inches.
No. 45795.

This is the small-sized cell, and while it has been superseded to a great extent by our No. 2 Improved Style which is described on previous pages, it has marked advantages over the old manner of combining the elements and is still preferred by some users of the Samson.

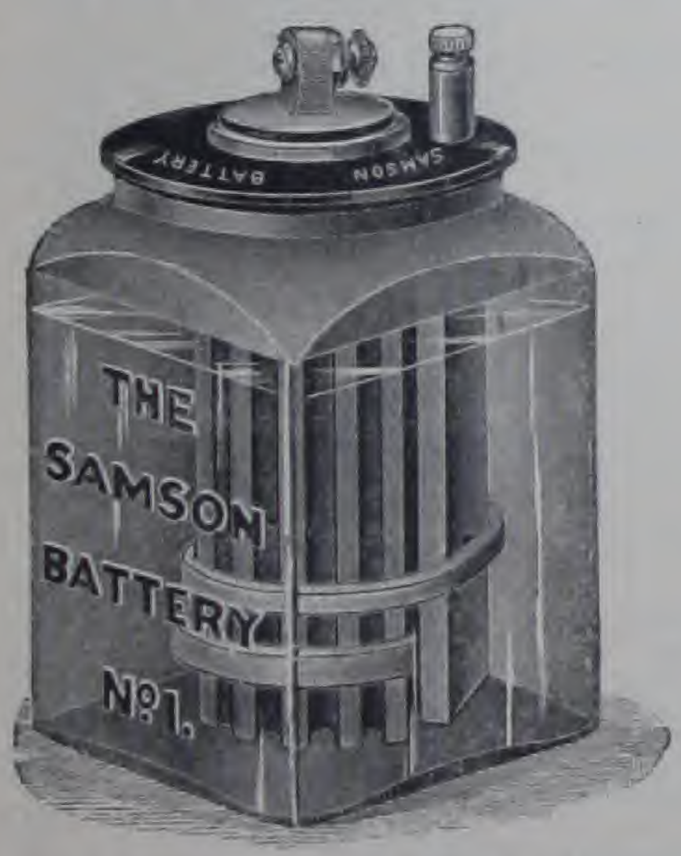
As will be noticed by the illustration, the carbon is made with outside connections, which is preferable to the previous style of binding post. This cell is adapted for Call-Bell Burglar-Alarm Annunciators and similar uses. It has an E. M. F. of 1.44 and a current on short circuit of about 10 amperes.



Length 6¾ inches.

Code Word.	List No.	No. 1.	LIST PRICE. Each 1 to 5	6 to 24	25 to 49	50 to 99
Zuhel	45795	Complete	$1.40	$1.30	$1.25	$1.20
Zuhem	45796	Carbon Vase	.90	.86	.80	.75
Zuhen	45797	Cylindrical Zinc	.24	.22	.20	.20
Zuhep	45798	Glass Jars	.18	.18	.16	...
Zuher	45799	Rubber Cover	.12	.12	.12	...
Zuhes	45800	Sal-Ammoniac Charge				.08
Zuhet	45801	Rubber Ring to suspend Carbon				.04
Zuhev	45802	Rubber Fender				.06
Zuhew	45803	Rubber Plugs (3)				.12
Zuhex	45804	Depolarizing Compound, per package				.10

Note.—Plugs are not sent with orders for Zincs unless specified.



Size 7⅛x4x4 inches.

THE No. 1 "SPECIAL" SAMSON BATTERY.

The same style zinc is used with this cell as with the No. 2 "Special" previously described, and it is applicable for the same uses.

THE NO. 3 SAMSON BATTERY.

This style of the Samson Battery has much greater strength and larger current output than the No. 2. It is, therefore, desirable for all purposes where great endurance is needed.

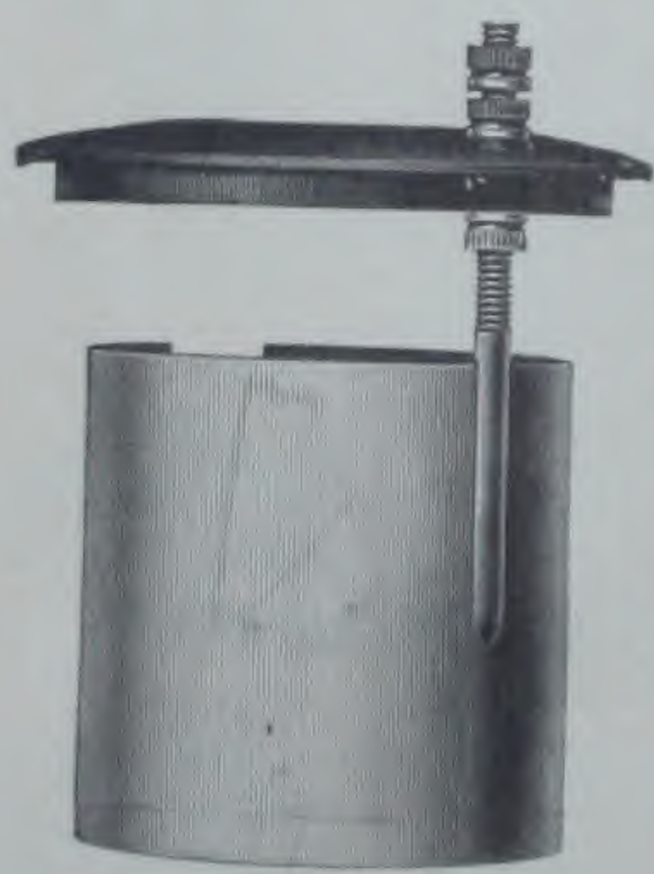
Size of Jar, 4¾x7 inches.

CONSTRUCTION.

The Carbon screwed into the cover, like the No. 2.

A new feature is shown in the method of fastening the zinc to the cover, which overcomes, to a great extent, the disproportionate eating of the zinc at the water line. This advantage is achieved by threading the full length of the zinc stem, which allows the raising or lowering of the zinc in the solution, and thus bringing a new surface of heavy zinc in the range of greatest electrolytic action. The zinc is of very heavy gauge, hand-amalgamated and reinforced, as will be seen in the illustration.

The cover is made of polished rubberoid, similar to that used in the No. 2 style, and the glass jar furnished is strong and well made. The latter being made without a neck allows the easy removal of the elements should they become heavily incrusted with salts, through an accidental and continued short circuit.



Cut showing method of raising and lowering zinc.

USES.

This style has proven of exceptional value for use in telephone installations, intercommunicating, switchboard or long distance, now that centralized battery is so generally used, being cheaper and simpler than storage battery, and in many cases being just as satisfactory. It is also unsurpassed for gas engines, railway signals, long distance telephone and all extra heavy intermittent battery service.

The splendid success of the celebrated Samson Batteries is a sufficient guarantee of the efficiency of this cell.

Code Word	List No.		List Price. Each.
Zuhez	45805	Complete	$2.00
Zuhi	45806	Carbon Vase	1.35
Zuhib	45807	Cylindrical Zinc	.50
Zuhid	45808	Jar, only	.40
Zuhif	45809	Sal-Ammoniac Charge	.20
Zuhig	45810	Rubber Cover	.20

THE "SEMI-DRY" SAMSON BATTERY.

No. 45599.
Size of Jar, 4⅝x7⅝ inches.

This cell fulfils the many requirements for a portable, non-spillable, open-circuit battery, contained in a jar not easily broken and possessing greater initial strength and longer life than our No. 2 Samson Battery.

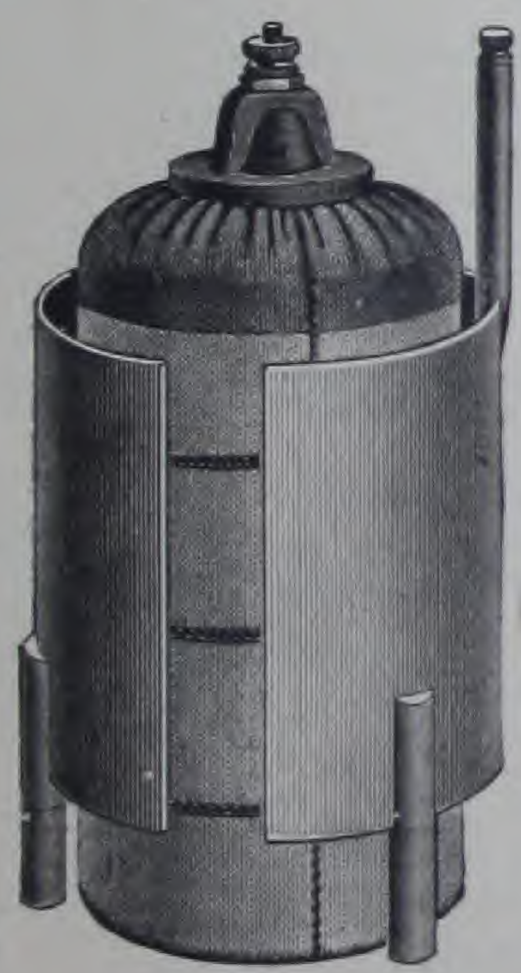
The Semi-Dry has been in practical use since January, 1897, since which time a large number have been sold. Many testimonials have been received commending it for the purposes for which it is adapted. We have no hesitation in saying that there is no dry battery manufactured which can compare with it in strength and long life.

CONSTRUCTION.

The negative element is a hollow fluted carbon cylinder (made in France), around which is fastened a strong linen bag containing a large amount of specially prepared Depolarizing Compound. A heavy reinforced cylindrical zinc forms the other element of the battery.

SEALED IN A STRONG PORCELAIN JAR

are the elements, this method obviating the possibility of the solution spilling. The battery is set up in the following manner:



Semi-Dry Elements.

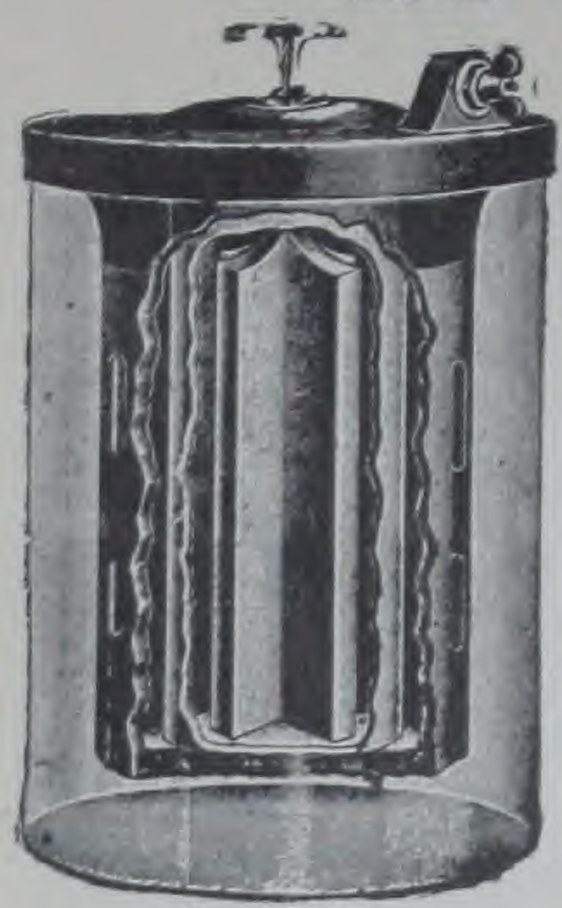
The cell is shipped with the dry salts in the jar, and it is only necessary to fill the jar with water to make it ready for immediate use. With this construction there is no deterioration of the strength of the cell "on the shelf," a common fault with dry batteries.

ADAPTED FOR

gasoline launches, automobiles, "slot" machines, marine use and general portable service.

Code Word.	List No.		List Price. Each.
Zufan	45599	Complete	$2.50
Zufap	45600	Carbon Vase	1.35
Zufar	45601	Cylindrical Zinc	.50
Zufas	45602	Jar, only	.70
Zufat	45603	Sal-Ammoniac Charge	.20
Zufav	45604	Complete Recharge, including Wax for Sealing	2.00

THE "HUB" FULLER BATTERY.

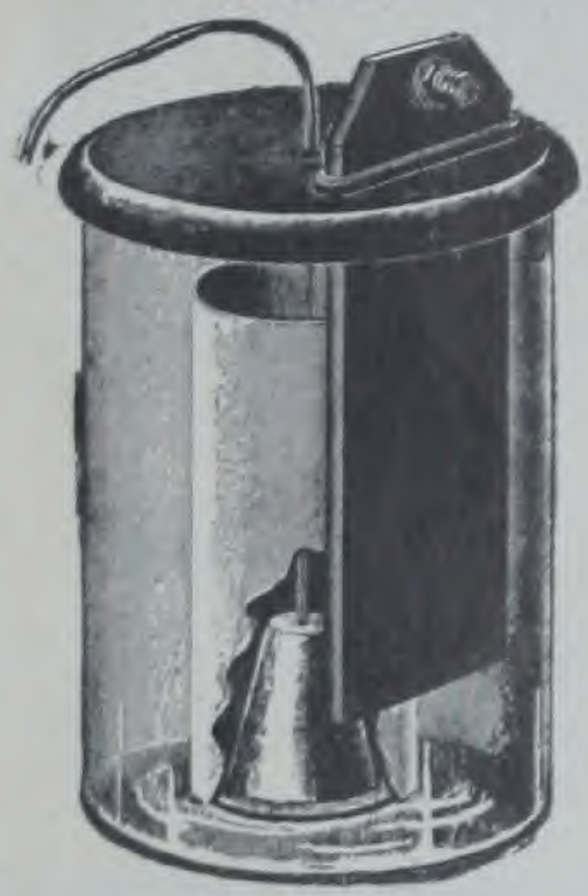


No 22237.

This style is a marked improvement over the ordinary type of Fuller cells. It consists of a carbon pot of large surface, a clay porous cup, a special zinc weighing two pounds, and a specially treated wood cover, all of which are adapted to the regular 6x8 glass jar.

This cell is particularly adapted to the operation of fan motors, small incandescent lamps, medical apparatus, telephone exchange service, automatic telephone switchboards, etc.

Code Word.	List No.		List Price, Each.
Zabohow	22237	Complete cell	$2.00
Zabohox	22238	Carbon pot	.96
Zabohoy	22239	Zinc	.60
Zabohoz	22240	Glass jar (6x8)	.50
Zabohu	22241	Porous cup (3x7)	.50
Zabohub	22242	Porous cup cover	.12



No. 22243.

THE "STANDARD" FULLER BATTERY.

This type of bi-chromate cell has come into general use, and is so well known that description is hardly necessary. As shown in above cut, it consists of a 6x8 glass jar, a carbon plate with suitable connections, a clay porous cup containing the zinc element, and a specially treated cover.

Thousands are in use throughout the country in long distance telephone service, and for work of like character.

Directions for setting up and maintenance of this cell accompany each.

Zabohuc	22243	Complete cell	1.60
Zabohud	22244	Carbon with connector	.60
Zabohuf	22245	Zinc	.40
Zabohug	22246	Glass jar (6x8)	.50
Zabohuh	22247	Porous cup (3x7)	.50
Zabohuk	22248	Cover for jar	.20

No. 22249.
Size of jar, 4⅜x6 inches.
Extreme height, 8¼ inches.

THE "BEACON" CARBON CYLINDER BATTERY.

We consider the Beacon Battery the best of the many domestic carbon cylinder batteries now on the market, and while it has not the strength or length of life of our Samson or Nosmas Batteries, for construction work where there is keen competition it will be found a very satisfactory cell. The elements are placed in a strong glass jar and the cell is furnished with a round lug zinc. A good grade of sal-ammoniac is used, and the carbon is furnished with a long porcelain bushing to prevent the zinc coming in contact with the same.

Zabohul	22249	Batteries complete	.50
Zabohum	22250	Carbon cylinders	.30
Zabohun	22251	Glass jars	.12
Zabohup	22252	Zinc	.06
Zabohur	22253	Sal-ammoniac	.10

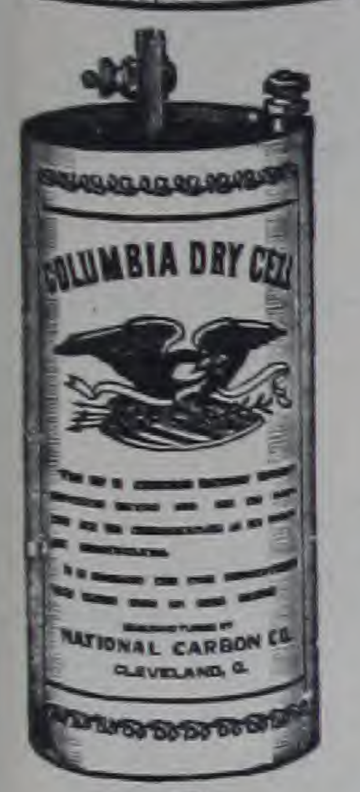
DRY BATTERIES.

HUB DRY BATTERY.

Made Especially for Open Circuit Work.

Size, 2½x6 inches.

Code Word.	List No.		List Price, Each.
Zaborus	10567		$0.30



COLUMBIA BATTERIES.

Mfrs. No.	Size.			Weight.	
Zaborut	10568	6	2½x6	2 lbs.	.40
Zaboruv	10569	7	3¼x7¾	3 lbs. 8 oz.	1.00
Zaboruw	10570	8	3¾x8¾	5 lbs.	1.20

1900 BATTERIES.

Size, 2½x6 inches. Weight, 2 pounds.

The constant and high E.M.F. 1.5 volt and large current discharge from 16 to 18 amperes, together with absolute freedom from local action, insures the most satisfactory exchange service.

Zozaw	45245	.36

TYPE C, 1900 CELL.

A first class battery of small dimensions, E.M.F. 1.5 volts. Current, 10 to 12 amperes.

Size, 2x5 inches. Weight, 1 pound 5 ounces.

Zozax	45246	.25

TYPE B, 1900 CELL.

The standard battery for interior telephone systems. E.M.F. 1.5 volts. Current, 8 to 10 amperes.

Size, 1¾x4 inches. Weight, 13 ounces.

Zozaz	45247	.25

MESCO BATTERY.

Size, 2½x6 inches.

Zaborux	10571	.25

RECTANGULAR TYPE DRY BATTERY.

			Size.	
Zaboruy	10572	1	1 x1 9/16 x3¼	.40
Zaboruz	10573	2	1¼x1¾x4	.45
Zabosa	10574	3	1½x2 x4¾	.50
Zabosab	10575	4	1¾x2¼x3⅛	.55
Zabosac	10576	5	2 x2½x6	.70
Zabosad	10577	6	2¼x2¾x7	.95

BATTERIES.

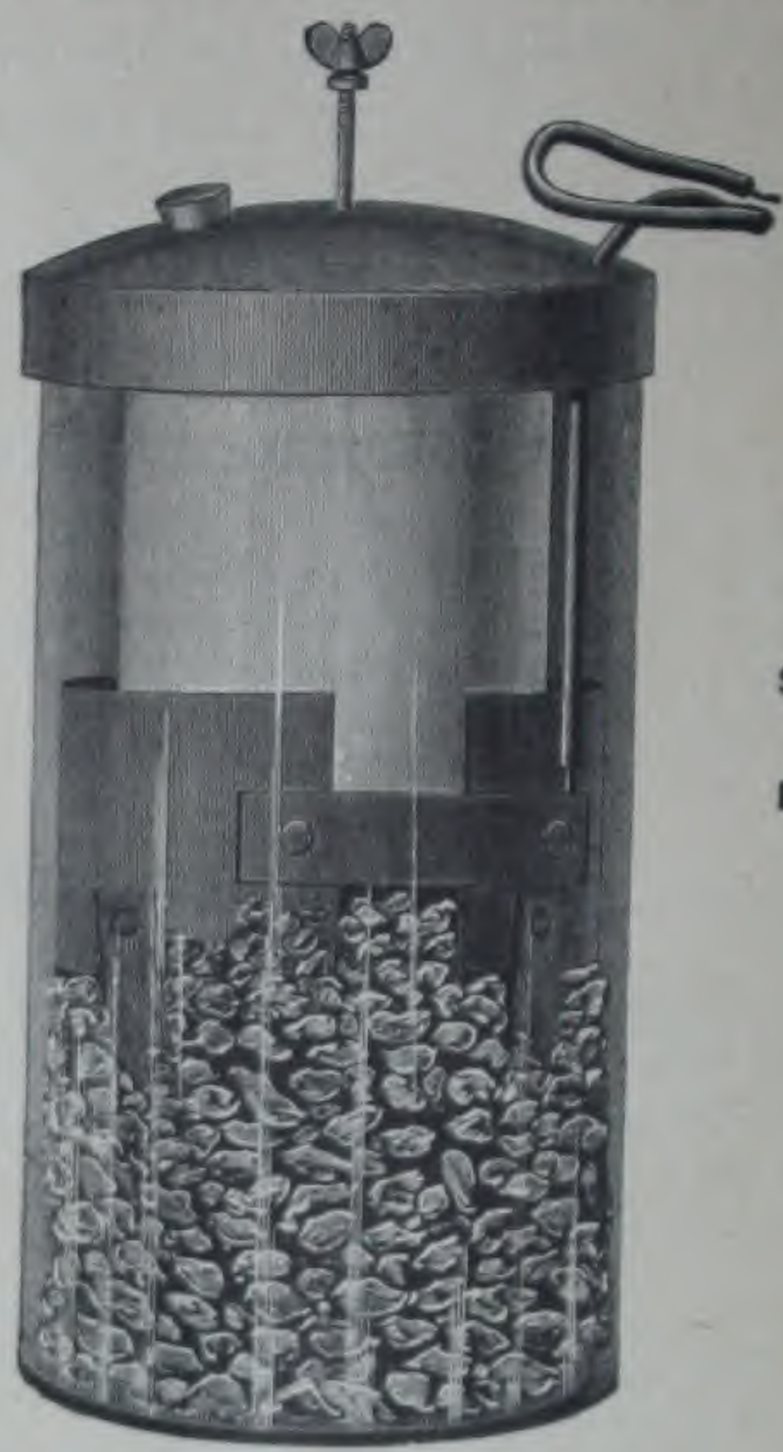
"EXCELLO" IMPROVED GRAVITY BATTERY.

E. M. F.—1.1 Volts.

Resistance, about .55 ohms.

Normal Working Current, 1-4 ampere.

Normal Discharge Rate per day, 6 ampere hours.



Size of Jar, 6½x12 inches.

Extreme height, 14 inches.

This Battery, which is of an improved gravity type, in combination with the original Daniell cell, is the result of years of study and practical experience. Its superiority consists in very low internal resistance, and consequent large current output, long life, constancy, economy of material and labor, reliability and cleanliness.

The cost of operating the "Excello" Improved Gravity Battery is very small—the labor being a much smaller item than with the ordinary type of gravity cell.

We recommend this battery as being unusually well adapted for telephone, telegraph, fire alarm and police telegraph, railway signal work, and for use in physical and chemical laboratories.

There is also a wide field of usefulness for this battery as used in connection with storage batteries by doctors, surgeons and dentists, for running lamp, for examining mouth, nose and throat, and operating cauteries, dental engines and lathes.

The primary battery current is automatically regulated as the storage cell becomes fully charged.

Code Word.	List No.		List Price, Each.
Zabutom	13115	Glass Jar, 6½x12	$0.45
Zabuton	13116	Porous Cup	.60
Zabutop	13117	Composite Zinc	.65
Zabutor	13118	Copper	.35
Zabutos	13119	Rubber cover	.50
Zabutot	13120	Complete Battery (except copper sulphate)	2.50

Eight pounds copper sulphate per cell is needed.

BATTERY CHEMICALS AND SUPPLIES.

No. 22218.

THE "SAMSON" BRAND SAL-AMMONIAC.

Code Word.	List No.		List Price, Per Lb.
Zabohix	22218	.....	$ .18

Barrel lots special quotations.

THE "SAMSON" BRAND BLUE VITRIOL.

Zabohiy	22219	.....	.10

Prices quoted on greater quantities and barrel lots of 450 pounds.

No. 22220.

"SAMSON" SAL-AMMONIAC BOXED.

In this form "Samson" brand Sal-Ammoniac is packed in a strong pasteboard box containing four ounces of this unexcelled brand.

			Each.
Zabohiz	22220	.....	.10

Special quotations in large quantities.

POROUS CUPS.

		Size.		Per Doz.
Zaboho	22221	3 x 5½	.....	3.60
Zabohob	22222	3 x 7	.....	6.00
Zabohoc	22223	3 x 8	.....	8.00

Other sizes in stock, though not listed. Special prices in quantities.

No. 22224.

"VOLTAK" BATTERY COMPOUND.

This is Electropoion Solution in a dry form. It is packed in tin cans and is ready for immediate use after dissolving in water. One can will make a gallon of solution for closed circuit batteries.

			Per Can.
Zabohod	22224	.....	.40

Prices on Chemicals subject to market changes.

BATTERY UTENSILS.

			List Price, Each.
Zabohof	22225	Syringe with Solid Piston.....	3.30
Zabohog	22226	Gravity Battery Hydrometer	1.00
Zabohoh	22227	Storage Hydrometer	1.50

BELLS.

THE "DUSTITE" BELL.

PERMANENT ADJUSTMENT.

No. 45671

This is the well known "fixed adjustment" bell movement of the Ross Annunciator set in a handsome, strictly dust tight and insect proof wooden case. During ten years the Ross Annunciator Bell has demonstrated the correctness of our theory that the bell need never be adjusted after it leaves the factory.

The need for adjustment is caused by defects, such as loose gongs, light-weight springs, and loose contact posts, and finally, by poor battery. We have overcome all structural defects in this bell, and can positively guarantee it to continue its work always, as long as it is supplied with sufficient battery current. If the bell stops work, **look to the battery**—the bell is sure to be right.

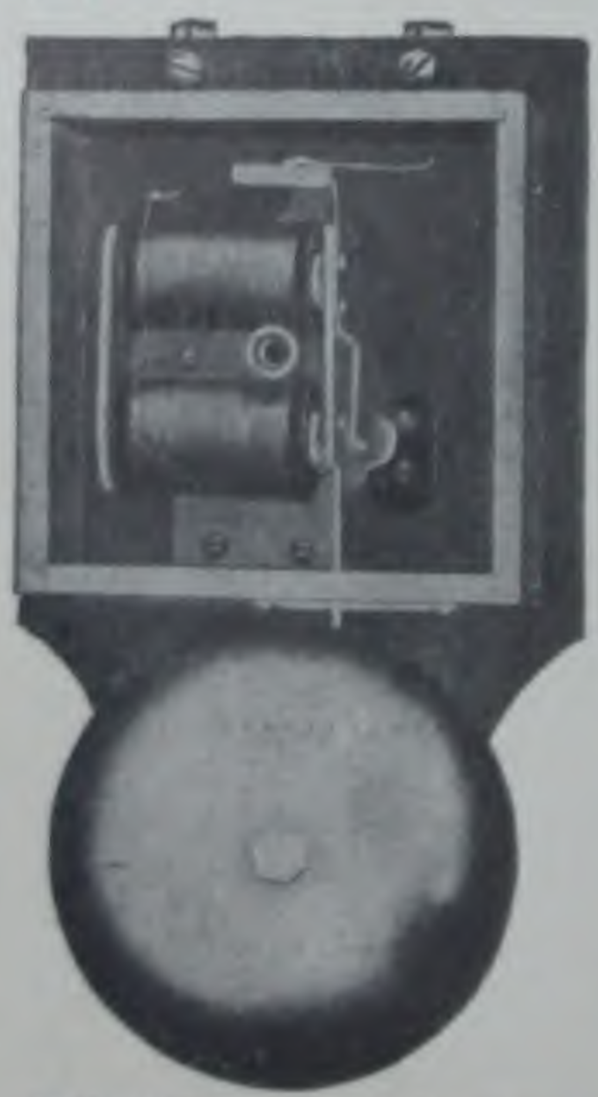
The Dust Tight feature is obtained by passing the hammer rod through a tool-made, accurate, sliding escutcheon, this being the only opening in the box. As there is no adjustment necessary, no other opening is necessary.

The gong is fastened in such a manner that it cannot turn or come loose.

The new style binding posts are bored so as to admit a double wire, the screws of same have rounded ends, so they will not cut the wire. They are also upset, so that they cannot turn clear out and be lost.

The cover is held by a single screw, so arranged in the escutcheon that it cannot fall out.

The magnets have about twice the usual amount of wire on them, giving a full charge of magnetism.



The "Dustite" Bell, Interior.

Code Word.	List No.		List Price Each.
Zuful	**45669**	2½ inch "Dustite" bell.....	**$ 1.16**
Zufum	**45670**	3 inch "Dustite" bell.....	**1.20**
Zufun	**45671**	3½ inch "Dustite" bell.....	**1.50**
Zufup	**45672**	4 inch "Dustite" bell	**1.90**
Zufur	**45673**	5 inch "Dustite" bell.....	**2.40**
Zufus	**45674**	6 inch "Dustite" bell.....	**3.20**
Zufut	**45675**	8 inch "Dustite" bell.....	**6.60**
Zufuv	**45676**	10 inch "Dustite" bell.....	**8.80**
Zufuw	**45677**	12 inch "Dustite" bell.....	**11.00**

"DUSTITE" BELLS—FANCY GONGS.

Zufux	**45678**	Dome "Dustite" bell.....	**$1.30**
Zufuz	**45679**	Sleigh "Dustite" bell	**1.30**
Zuga	**45680**	Wood gong "Dustite" bell.....	**1.30**
Zugab	**45681**	Cow "Dustite" bell	**1.30**
Zugad	**45682**	Tea or tower "Dustite" bell.....	**1.30**
Zugaf	**45683**	4 inch-cow "Dustite" bell.....	**3.60**
Zugag	**45684**	4 inch-tea "Dustite" bell	**3.60**

BELLS.

MONITOR BELL.

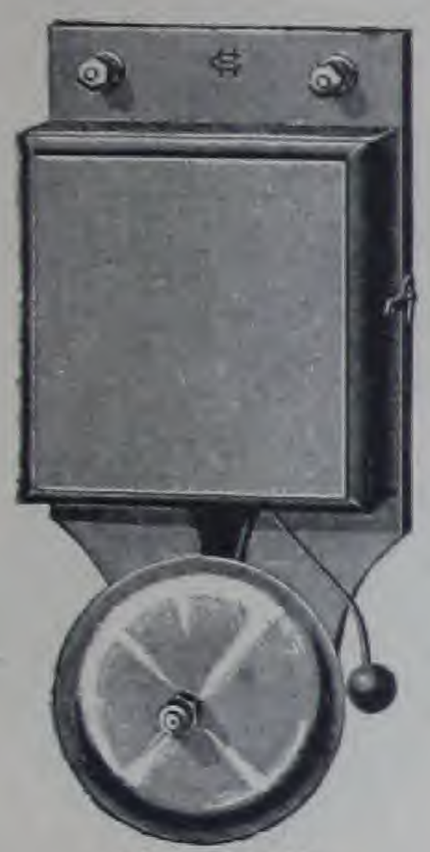
No. 16987.

Gives a full, clear tone. Platinized contacts. No screws or nuts being used in the adjustment, it cannot get out of order through operation. Hammer cannot be tampered with. Especially adapted to street cars, as it is dust, insect and moisture proof. For telephone and annunciator use it can be furnished with a shunt attachment which cuts the magnets out of the circuit. Gong of bell metal-nickeled, base japanned.

Code Word.	List No.		List Price. Each.
Zacim	16988	3 inch Gong	$0.80

Either size with shunt attachment, 40 cents extra.

VICTOR WOOD BOX BELL.



No. 22517.

This is what might be called an old-fashioned bell, and will suit those who are looking for a first-class article at a fair price. It is made with magnets wound to three ohms, contact points solidly riveted to armature spring, simple double-adjustment device, circuit breaker which cannot twist, cast gongs, all exposed parts heavily nickel plated, and well finished woodwork. The size of the box, up to 4 inch gong, is 3¼x3¼.

The bell is finished in oak wood.

Zabonif	22517	2½ inch "Victor" Bell	1.16
Zabonig	22518	3 inch "Victor" Bell	1.20
Zabonih	22519	3½ inch "Victor" Bell	1.50
Zabonik	22520	4 inch "Victor" Bell	1.90
Zabonil	22521	5 inch "Victor" Bell	2.40
Zabonim	22522	6 inch "Victor" Bell	3.20
Zabonin	22523	8 inch "Victor" Bell	6.60
Zabonip	22524	10 inch "Victor" Bell	8.80
Zabonir	22525	12 inch "Victor" Bell	11.00

FANCY GONGS VICTOR BELLS.

Zabonis	22526	Dome "Victor" Bell	1.30
Zabonit	22527	Sleigh "Victor" Bell	1.30
Zaboniv	22528	Wood Gong "Victor" Bell	1.30
Zaboniw	22529	Cow "Victor" Bell	1.30
Zabonix	22530	Tea or Tower "Victor" Bell	1.30
Zaboniy	22531	4 inch Cow "Victor" Bell	3.00
Zaboniz	22532	4 inch Tea "Victor" Bell	3.00

GAS LIGHTING RELAY BELL.

No. 22533.

This bell indicates a ground in gas lighting circuits by a continuous ringing of the bell. The advantage over the common Tell-Tale Bell is that it does not require either a relay, a spark coil combined with a relay, or an auxiliary cell of battery to operate it. All that is required is to place it in the circuit in some convenient place where the bell may be heard should a short circuit occur. See our Automatic Cut-out, however, if you desire perfect protection on gas lighting systems.

Zabono 22533 ..... 1.50

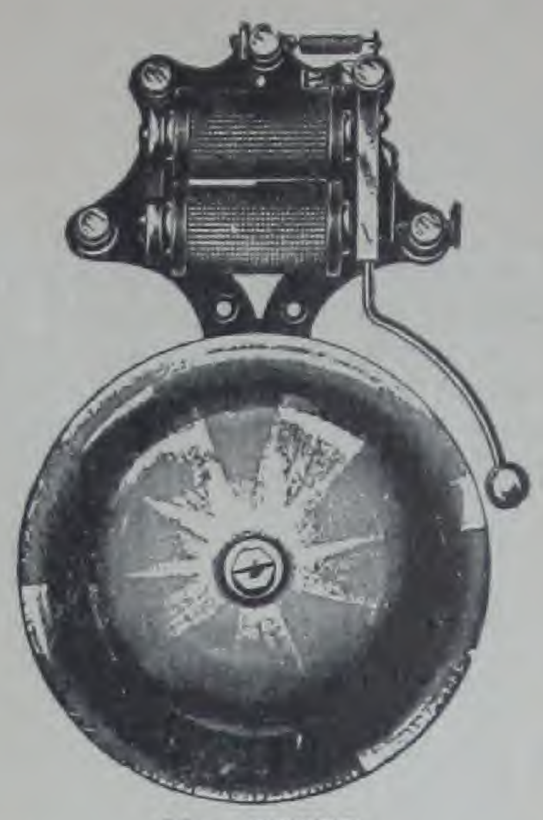
THE NEW TYROLEAN BELL.

No. 16990.

This is the most elegant Hall Bell ever manufactured From a handsome bracket is suspended a 4 inch tea gong, inside of which is attached a well made vibrating mechanism, which requires two cells No. 1 Samson Battery to operate it. It is made in all the latest styles of finishes—nickel plated, oxidized copper, oxidized silver, bower barff, polished brass, etc. It serves as a very beautiful window display, attracting attention to your other goods.

Zacip 16990 Nickel plated 5.00

Special finishes, 50 cents extra, net.



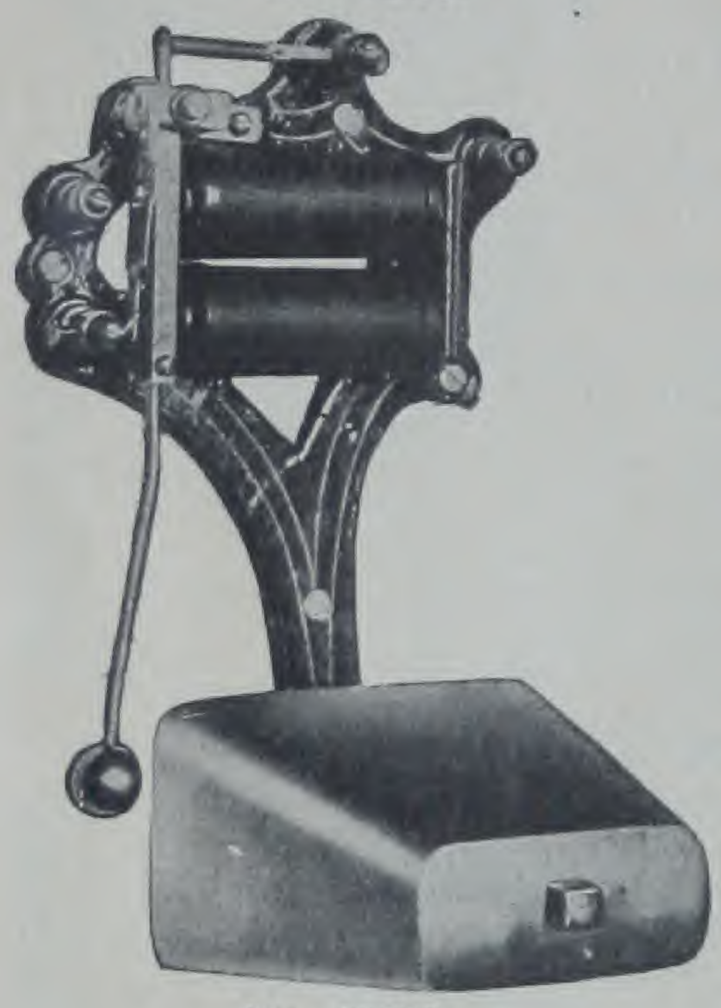
No. 22277.

BELLS.

SKELETON BELLS.

CLASS A.

Code Word.	List No.	Inch.	No. of Movement.	Ohms.	List Price. Each.
Zabokaw	22277	2½	3	5	$2.00
Zabokax	22278	3	3	5	2.08
Zabokay	22279	4	3	5	2.34
Zabokaz	22280	5	4	5	3.32
Zaboke	22281	6	4	5	3.60
Zabokeb	22282	7	5	7	5.46
Zabokec	22283	8	5	7	6.00
Zaboked	22284	10	5	7	9.60
Zabokef	22285	12	5	7	12.00
Zabokeg	22286	12	6	10	14.40
Zabokeh	22288	14	6	10	24.00
Zabokek	22289	16	6	10	31.00



No. 22298.

SKELETON BELLS.

CLASS B.

Zabokel	22290	2½ inch	1.76
Zabokem	22291	3 inch	1.78
Zaboken	22292	4 inch	1.84
Zabokep	22293	5 inch	2.80
Zaboker	22294	6 inch	2.92
Zabokes	22295	8 inch	5.34
Zaboket	22296	10 inch	8.26
Zabokev	22297	12 inch	9.06

RACKET BELL.

This Bell is furnished with a large size Cow Gong, and is designed for use in noisy places.

Zabokew	22298	4 inch	3.50
Zabokex	22299	6 inch	6.00

No. 22300.

FANCY GONGS.

Zabokey	22300	Tea Gong, 2⅜ inches	.25

No. 22301.

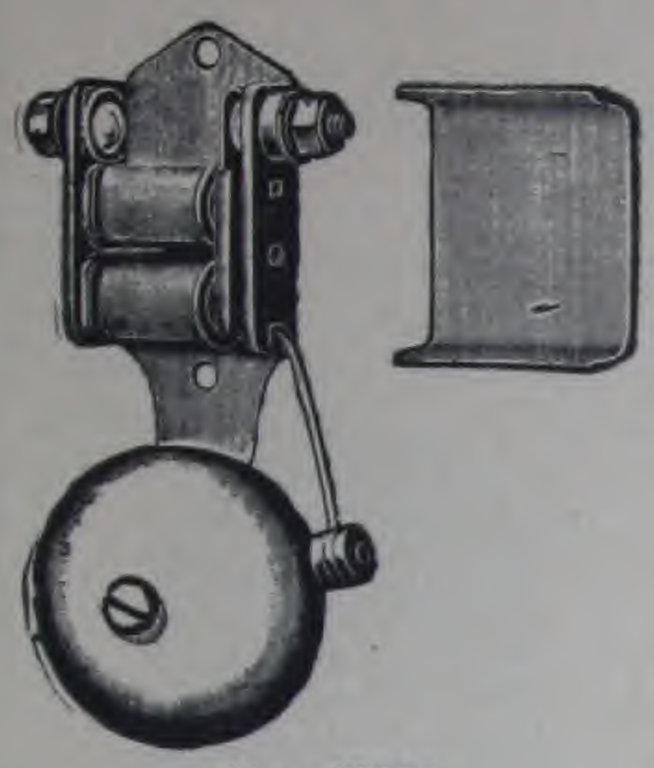
Zabokez	22301	Cow Gong, 1⅜x1⅞ inches	.25

No. 22302.

Zaboki	22302	Sleigh Gong, 1 9-16 inches	.25

No. 22303.

Zabokib	22303	Dome Gong, 2⅜ inches	.25
Zabokic	22304	Dome Gong, 2⅝ inches	.30
Zabokid	22305	Wood Gong, 2½ inches	.25
Zabokif	22306	Wood Gong, 3 inches	.35



No. 47318.

BELLS.

THE ECO BELL.

Cannot work out of adjustment, there being no adjustment screws to be displaced. It will operate equally well on one or ten cells of battery.

Contact points are platinized.

The vibrations are rapid and regular.

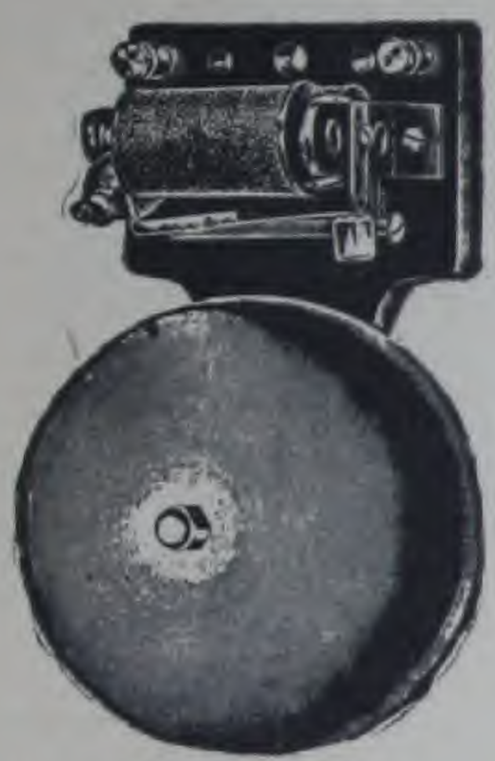
The hammer rod and armature are in one piece, and cannot be displaced.

The rod passing through the base at right angles, the hole is only slightly larger than the rod; and as the ribbed edges of the cover spring tightly over the base, this is as nearly as possible a dust and insect proof bell.

Gongs are stamped brass, heavily nickel plated.

Code Word.	List No.		List Price Each.
Zabafuk	47313	1 inch, 3 ohms resistance.....	$ .90
Zabaful	47314	1¾ inch, 3 ohms resistance.....	.78
Zabafum	47315	2 inch, 3 ohms resistance.....	.80
Zabafun	47316	2½ inch, 3 ohms resistance.....	.58
Zabafup	47317	3 inch, 3 ohms resistance.....	.60
Zabafur	47318	4 inch, 3 ohms resistance.....	.84

Sizes 1¾ to 4 in. are finished in japan.
Size No. 1, full nickel.



No. 47324.

VIGILANT SINGLE STROKE AND VIBRATING BELL.

		Size.	Resistance.	Single stroke.	Vibrating.	Series or Combination S. S. and Vib.
Zabafus	47319	2½	6 ohms	$4.80	$5.80	$6.80
Zabafut	47320	3	6 ohms	5.00	6.00	7.00
Zabafuv	47321	4	6 ohms	5.50	6.50	7.50
Zabafuw	47322	5	6 ohms	6.20	7.20	8.20
Zabafux	47323	6	6 ohms	7.50	8.50	9.50
Zabafuz	47324	8	6 ohms	10.00	11.00	12.00
Zabaga	47325	10	6 ohms	14.40	15.40	16.40
Zabagab	47326	12	6 ohms	15.00	16.00	17.00
Zabagad	47327	14	6 ohms	26.20	27.20	28.20
Zabagaf	47328	16	6 ohms	30.00	31.00	32.00
Zabagag	47329	18	6 ohms	46.50	47.50	48.50
Zabagah	47330	20	6 ohms	75.00	76.00	77.00

No. 47336.

RECTI BELL.

Zabagak	47331	3 inch, 3 ohms.....	$5.00
Zabagal	47332	4 inch, 3 ohms.....	5.50
Zabagam	47333	5 inch, 3 ohms.....	6.00
Zabagan	47334	6 inch, 3 ohms.....	6.20
Zabagap	47335	7 inch, 3 ohms.....	7.00
Zabagar	47336	8 inch, 3 ohms.....	8.00
Zabagas	47337	9 inch, 3 ohms.....	10.00
Zabagat	47338	10 inch, 3 ohms.....	12.00
Zabagav	47339	12 inch, 3 ohms.....	15.75
Zabagaw	47340	14 inch, 3 ohms.....	22.50

No. 47343.

ELECTRO-MECHANICAL GONG.

For Use Indoors.

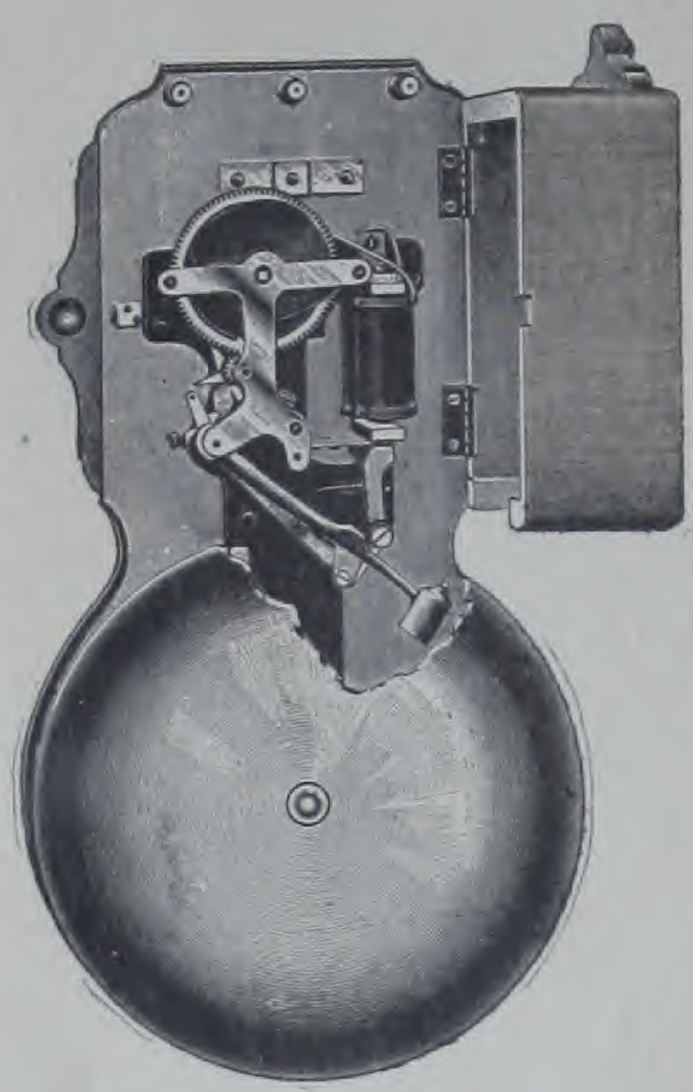
Zabagax	47341	5 inch.....	19.40
Zabagaz	47342	6 inch.....	20.00
Zabage	47343	8 inch.....	22.50
Zabageb	47344	9 inch.....	25.00

For Use in Exposed Places.

Zabaged	47345	8 inch.....	30.00
Zabagef	47346	10 inch.....	31.00
Zabageg	47347	12 inch.....	35.00
Zabageh	47348	14 inch.....	40.00
Zabagek	47349	15 inch.....	42.50
Zabagel	47350	16 inch.....	45.00
Zabagem	47351	18 inch.....	55.00

Resistance up to 10 ohms. additional charge for higher resistance.

THE STAR ELECTRO-MECHANICAL GONG.



Patented in United States and Canada.

This gong is designed for indoor use for railway purposes, in fire department houses, factories, schoolhouses, mines, etc., where loud and unerring alarms are required. The mechanism is simple, the operation accurate, and it will strike over three hundred blows with one winding. The instrument is mounted in a handsomely polished oak or black walnut case, having a glass front.

Style "A."

Single stroke, open circuit, 10 ohms resistance. This style is furnished with a device by which a bell can be connected in the circuit which will ring when the striking mechanism requires winding.

Style "B."

Continuous ringing, open circuit, 10 ohms resistance. When specially ordered, a device will be added for hotel fire alarm purposes, which will cause the gong to continue to strike should the wires be broken or burnt off, if one electrical impulse has reached the gong.

Style "C."

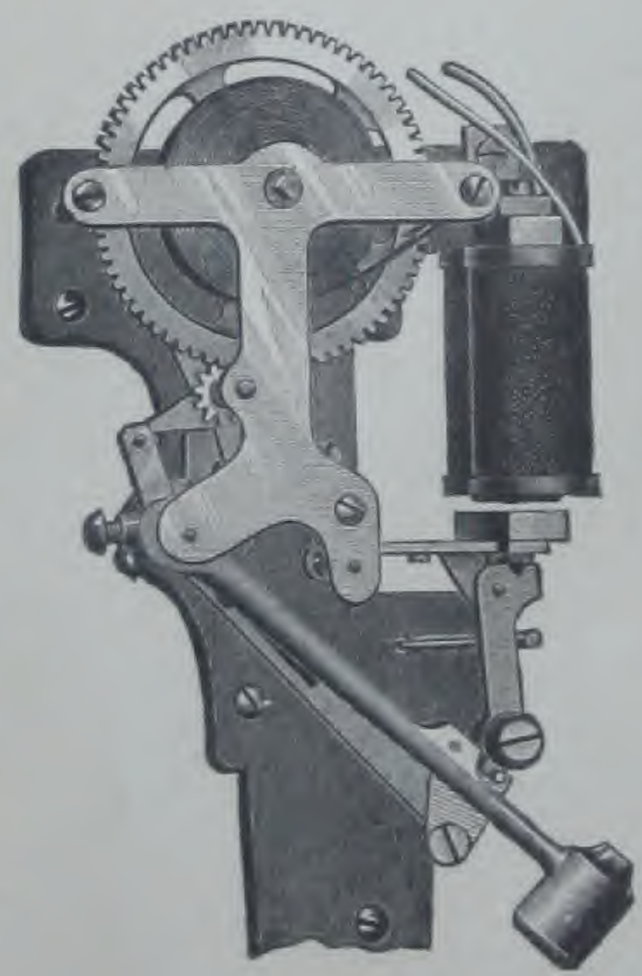
Single stroke, closed circuit, 25 ohms resistance. The gong strikes when contact is broken. Wound from 20 to 30 ohms resistance without extra charge. The device used with style "A" is also fitted to this style.

Style "D."

Continuous ringing, closed circuit, wound to 25 ohms (wound from 20 to 30 ohms without extra charge when so stated on order).

When orders do not state resistance, we shall send 10-ohm gongs made for open circuit.

We have a special device which enables the clerk to test the gongs at regular intervals and stop the gong after making a few strokes. This device overcomes the objection found in all other continuous ringing gongs, in that they could not be stopped after starting, except by placing a bell-boy at each gong whose duty it was to pull a chain to stop it, after the gong had rung a few strokes.



Code Word.	List No.	Size.	List Price, Each. "A" & "B." Styles	List Price, Each. "C" & "D." Styles
Zabizeb	21452	8 inch.....	$28.00	$30.00
Zabizec	21453	10 inch.....	32.00	34.00
Zabized	21454	12 inch.....	38.00	40.00
Zabizef	21455	14 inch.....	44.00	46.00
Zabizeg	21456	15 inch.....	48.00	50.00
Zabizeh	21457	18 inch.....	56.00	58.00

The Code Word and List No. of the Gong desired should be prefixed with the Style Letter.

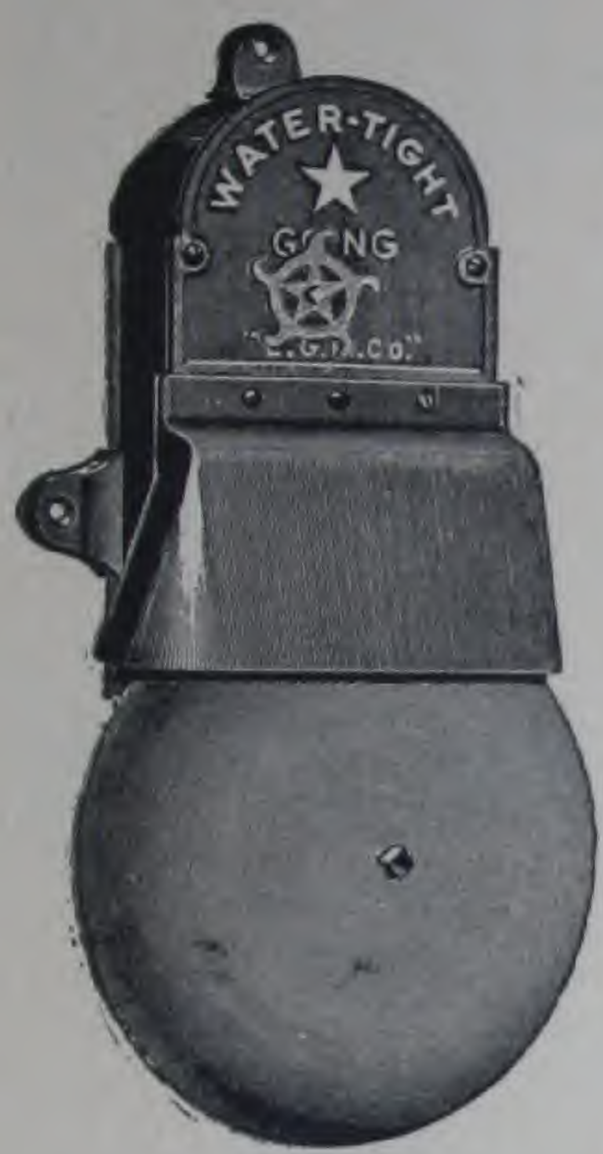
"STAR" GONG MECHANISM.

The mechanism is simple, and its operation accurate. The release, controlled by the electro-magnet, is provided with an attachment which holds the hammer in position except at the instant the current ceases, thus preventing more than one stroke for each pressure of the key. The hammer, thus released, falls into position for the blow, releases a stop-lever, and sets in motion a spring mechanism, geared to a 5-pointed star, one point of which forces the hammer to strike the blow.

THE STAR WATER-TIGHT GONG.

FOR OUTDOOR AND MINE USE.

"Winds Three Ways."



This gong contains our "Star" Electro-Mechanical Gong Mechanism encased in a weather-proof iron case. This mechanism has been made by us for the past fifteen years, and has proven very successful for fire alarm, mill, school and other similar uses.

The following are some of the advantageous features of this new style gong.

It is made absolutely weather-proof by the use of rubber gaskets, and has protected binding posts.

Sleet guard prevents ice and snow forming upon the gong and diminishing its tone.

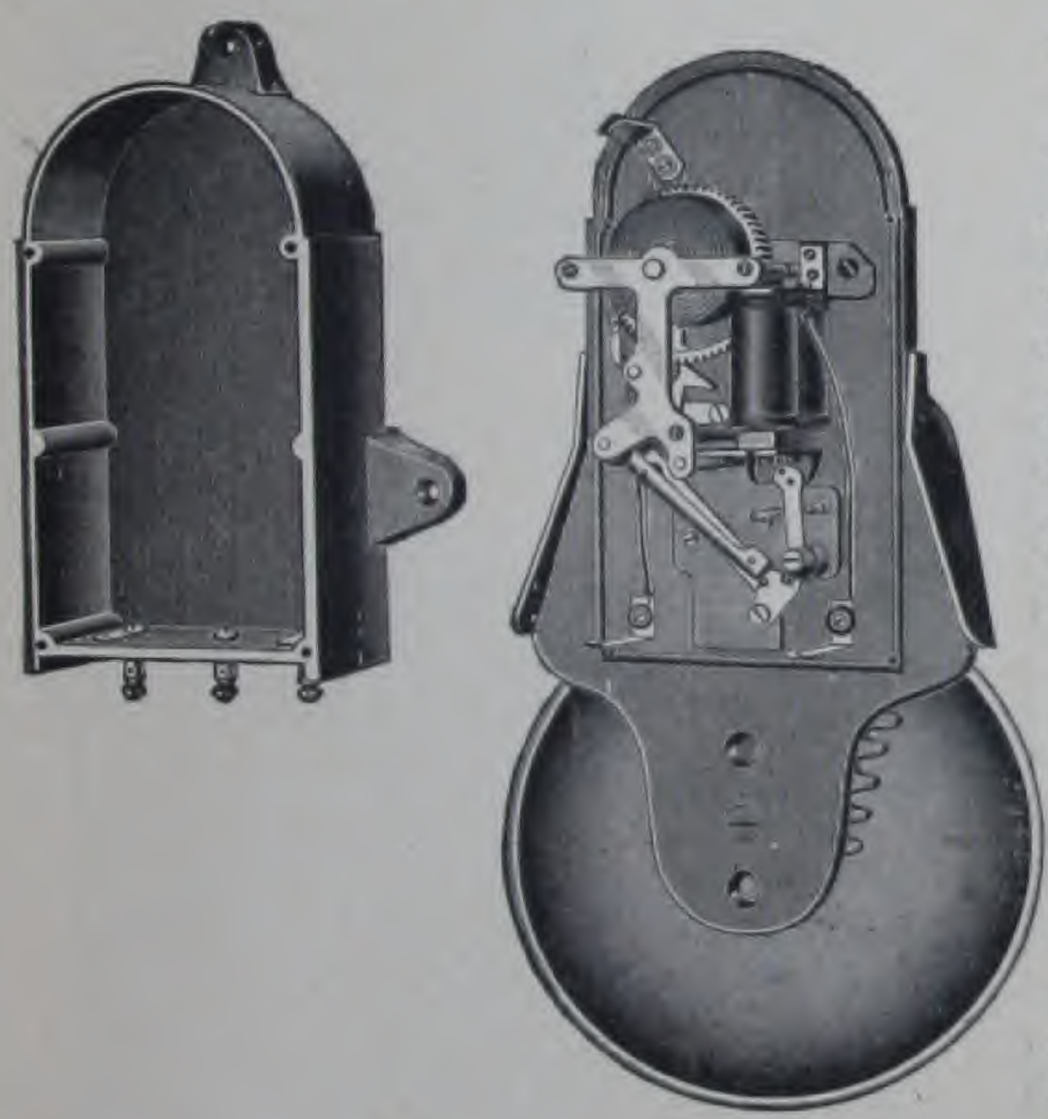
The front casting, which carries the mechanism, can be removed without detaching base from the wall (see cut below).

It has a guard which prevents nest-building by birds under gong.

Gong strikes three hundred blows at one winding.

Mechanism can be wound either by hand, by a key, or by a pole. This will be recognized by users of this style of apparatus as being very desirable.

Styles "F" and "J" have a special mechanism which gives notification that the spring is run down. This overcomes the pronounced objection to single-stroke Electro-Mechanical Gongs, which, when they are run down or nearly so, do not strike the proper signals.



Styles "E," "F" and "G."

Style "E"—Single stroke, open circuit, 10 ohms resistance.

Style "F"—Same as Style "E," including winding notification mechanism, $1.00 extra.

Style "G"—Continuous ringing, open circuit, 10 ohms resistance.

Code Word.	List No.	Size.	List Price, Each.
Zabizam	21410	8-inch.....	**$28.00**
Zabizan	21411	10i-nch.....	**32.00**
Zabizap	21412	12-inch.....	**38.00**
Zabizar	21413	14-inch.....	**44.00**
Zabizas	21414	15-inch.....	**48.00**
Zabizat	21415	18-inch.....	**56.00**

Styles "H," "J" and "K."

Style "H"—Single stroke, closed circuit, 25 ohms resistance.

Style "J"—Same as Style "H," including winding notification mechanism, $1.00 extra.

Style "K"—Continuous ringing, closed circuit, 25 ohms resistance.

Zabizav	21416	8-inch.....	**30.00**
Zabizaw	21417	10-inch.....	**34.00**
Zabizax	21418	12-inch.....	**40.00**
Zabizay	21419	14-inch.....	**46.00**
Zabizaz	21420	15-inch.....	**50.00**
Zabize	21421	18-inch.....	**58.00**

The Code Word and List No. of the Gong desired should be prefixed with Style Letter.

BELLS.

No. 22406.

IRON BOX BELLS.

CLASS A.

Code Word.	List No.			List Price, Each.
Zabolif	22406	2½	inch	$0.60
Zabolig	22407	3	inch	.62
Zabolih	22408	4	inch	.78

CLASS B.

Zabolik	22409	2½	inch	.54
Zabolil	22410	3	inch	.56
Zabolim	22411	4	inch	.74

CLASS C.

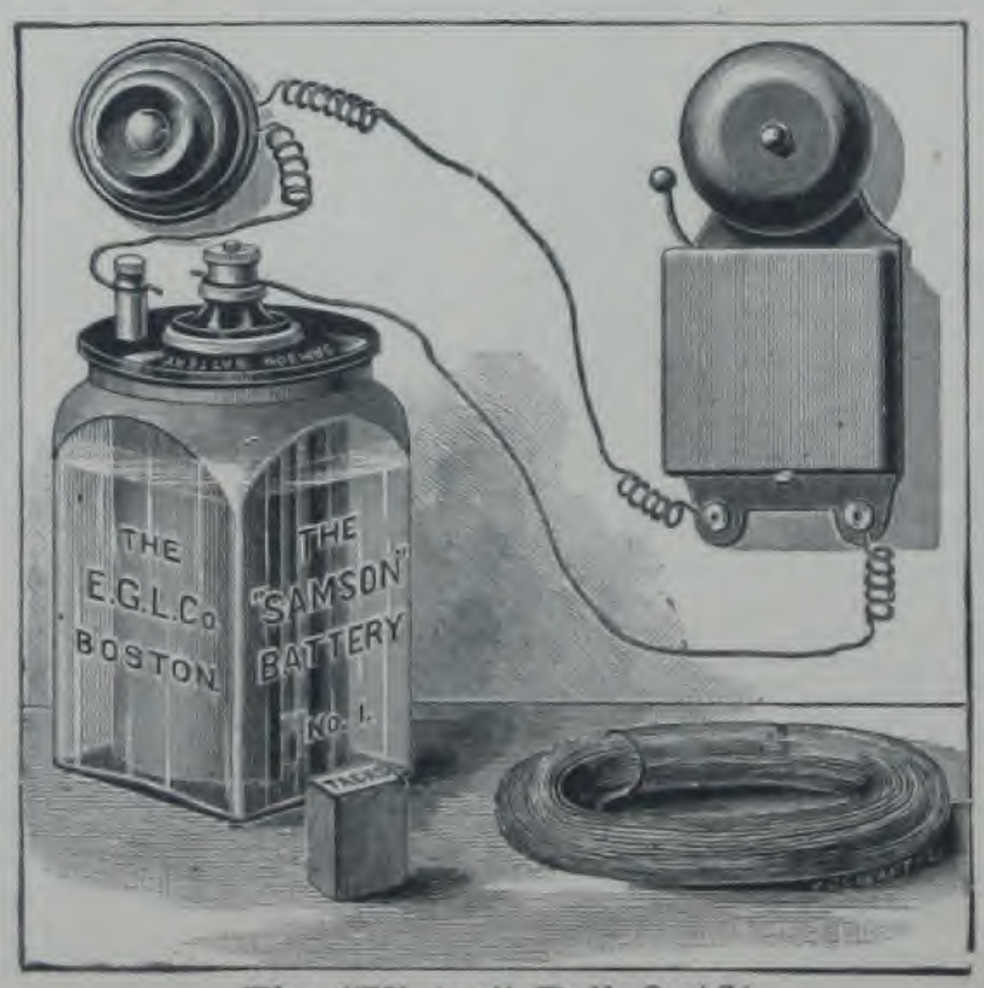
Zabolin	22412	2½	inch	.50
Zabolip	22413	3	inch	.52
Zabolir	22414	4	inch	.68

No. 22415.

WOOD BOX BELLS.

Zabolis	22415	2½	inch	.76
Zabolit	22416	3	inch	.78
Zaboliv	22417	4	inch	.98

For Platinum Points add .18 to price of Bell.



The "Victor" Bell Outfit.
No. 22419.

BELL OUTFITS.

HUB BELL OUTFIT.

One 2½-inch No. 56 Bell.
One No. 1 Wood Push.
One Dry Battery.
Fifty feet No. 18 Annunciator Wire.
One box Double-Pointed Tacks.

Zaboliw....22418 ..... 1.50

VICTOR BELL OUTFIT.

One 2½-inch Victor Bell.
One No. 1 Samson Battery.
One either No. 11, 14, 17 or 46 Bronze Push.
One hundred feet No. 18 Annunciator Wire.
One box Double-Pointed Tacks.
One small roll of Tape.

Zabolix.... 22419 ..... 4.00

BUZZERS.

No. 22433.

WATCH CASE BUZZER.

Size 7/8x1 3/4 inches.

A perfectly adjusted Buzzer, placed in a well nickeled brass box and fitted with binding posts on outside of case. The armature will not stick, which is a trouble frequently found in small metal buzzers.

Code Word.	List No.		List Price, Each.
Zabomiz	22433		$0.64

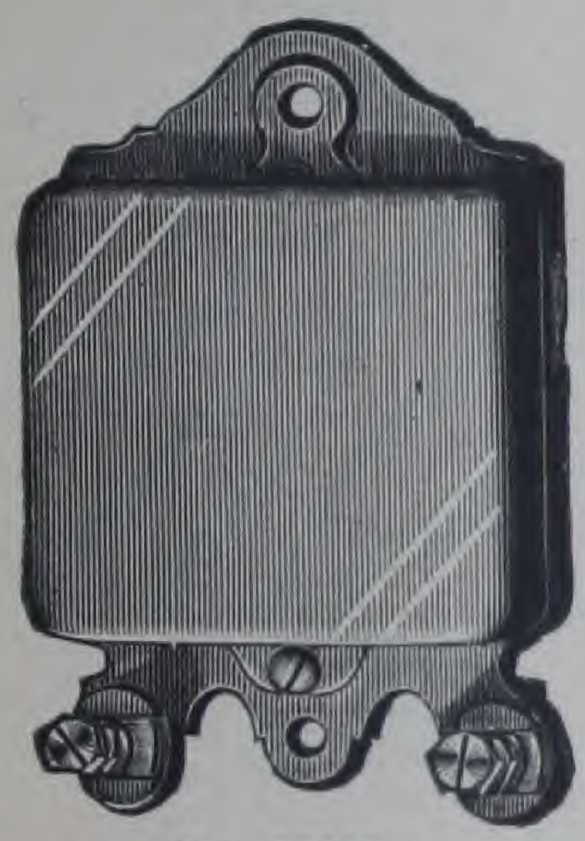
No. 22434.

BEE HIVE BUZZER.

Size 2 1/4x2 3/4 inches.

The internal construction of this Buzzer has been entirely rearranged and is now fitted with the same working parts as the Watch Case Buzzer. The top unscrews and binding posts are located under the base.

Zabomo	22434		.70



No. 22435.

IRON BOX BUZZER.

This is a loud-toned, well-finished Buzzer.

CLASS A.

Zabomob	22435	Japanned	.58

CLASS B.

Zabomoc	22436	Japanned	.52
Zabomod	22437	Nickel plated	.62

CLASS C.

Zabomof	22438	Japanned	.48
Zabomog	22439	Nickel plated	.56

No. 22440.

ECO BUZZER.

This is a small, neat, metal Buzzer, nickel plated, furnished with an adjusting screw, by which the tone may be regulated.

		Mfr. No.	
Zabomoh	22440	0	.60
Zabomok	22441	1	.56
Zabomol	22442	2	.60
Zabomom	22443	3	.62
Zabomon	22444	4	.65

PUSH BUTTONS.

No. 22357.

DESK PUSH.

NICKEL OR BRASS.

Fits 5/8-inch hole.

Insist on having genuine "E. G. M. Co." Desk Pushes. They have special means of preventing electrodes sticking and pearl centers loosening.

No. 22554.

Code Word.	List No.		List Price, Each.
Zabokuv	22357	Pearl center	$0.20
Zabokuw	22358	Black composition center	.16
Zabokux	22359	White celluloid center	.16

NAME PLATE FOR DESK PUSH.

NICKEL.

Zaborub	22554	Name plate	.04
Zabokuy	22360	Stamping, extra, per button	.04

No. 22361.

HUB PUSH.

NICKEL.

Fits 1/2-inch hole.

Black Composition Centers.

No. 22362.

Zabokuz	22361	No. 1	.20
Zabola	22362	No. 3, with escutcheon	.25
Zabolab	22363	No. 5, with binding posts	.25
Zabolac	22364	No. 7, with binding posts and escutcheon	.30
Zabolad	22365	Extra for pearl centers	.06

HUB PUSH.

NICKEL.

Fits 5/8-inch hole.

No. 22368.

Zabolaf	22366	No. 8, black composition centers	.25
Zabolag	22367	Extra for pearl centers	.06

JUNIOR PUSH.

NICKEL, PEARL CENTER.

Fits 5/8-inch hole.

No. 22369.

Zabolah	22368		.25

MITE PUSH.

NICKEL, PEARL CENTER.

Fits 1/2-inch hole.

Zabolak	22369		.15

PUSHES.

WATER-TIGHT PUSH BUTTON.

No. 9552.

This makes a perfect water-tight push, reliable in every respect. They are being used on government steamships, in mines, vaults, cold storage and ice houses, and in thousands of other damp places.

Code Word.	List No.		List Price Each.
Paddlers	9552	Platinum contacts	$2.00
Paddeln	9553	Without platinum	1.80

No. 9554.

PAPER WEIGHT WOOD DESK PUSH.

Polished Wood Push, with lead in bottom.
Very convenient and neat.

Paddock	9554	Oak, only	.30

No. 9555.

WOODEN PUSHES.

Can be used as a regular push button, and by attaching a double conductor flexible cord with a pear push or table clamp on the end, the circuit can be extended to a bed for the convenient use of a sick person, or to desk, table, etc.

Padejador	9555	Walnut or Oak	.30

WOODEN PUSH BUTTONS.

No. 9556.

Size, 2⅛ inches.

Polished Finish.

Padelin	9556	Walnut	.15
Padellone	9557	Ash	.15
Padellotto	9558	Stained Cherry	.15
Padishah	9559	Antique Oak	.15
Padlocking	9560	Oak	.15
Padlocks	9561	Mahogany	.15

No. 9562.

Size, 1¾ inches.

Polished Finish.

Padolles	9562	Walnut	.15
Padouane	9563	Oak	.15
Padrasto	9564	Ash	.15
Padrinhar	9565	Stained Cherry	.15

No. 9266.

STAMPED METAL PUSH.

Nicely Finished and Lacquered.

Padrinos	9266	Size 2⅜ inches. Finishes Nos. 1, 2 and 7, each	.18

PUSH BUTTONS.

No. 45708.

No. 49 CAST BRONZE PUSH.

Size, 1⅝ in. Screw Cap.

Code Word	List No.	List Price, Each.
Zugep	45708	$0.34

Style A, E, and X finish in stock.

No. 49 1-2 CAST BRONZE PUSH.

No. 49 Push without ornamentation.

Zuger	45709	$0.34

Style A and E finish in stock.

No. 45710.

No. 17 CAST BRONZE PUSH.

Size 2¼ in. Loose Back.

Zuges	45710	$0.25

Style A and E finish in stock.

No. 45711.

No. 14 CAST BRONZE PUSH.

Size 2¼ in. Loose Back.

Zuget	45711	$0.25

Style A, E and X finish in stock.

No. 45712.

No. 0 CAST BRONZE PUSH.

Size, 2 1/16 in. Screw Cap.

Zugev	45712	$0.40

Style A, E, and X finish in stock.

FINISHES FURNISHED.—(See note below.)

A	Light Bronze.	E	Oxidized Copper.
B	Dark Bronze.	X	Black Inlaid.
C	Nickel Plated.	Y	Old Brass.

Note.—With the description of each push button is stated the style and finish carried in stock. Other finishes will be considered special and charged for accordingly.

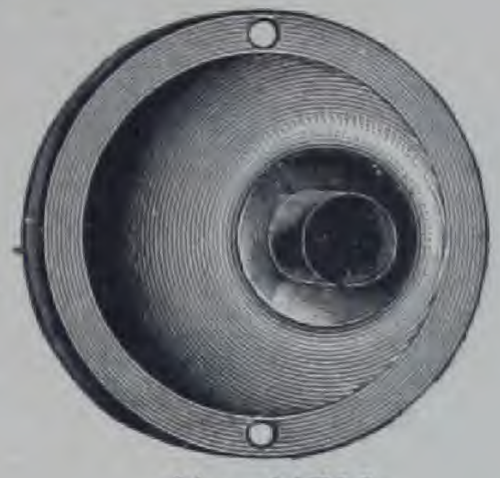
PUSH BUTTONS.

WROUGHT BRONZE PUSH BUTTONS.

COMPOSITION CENTERS. HARD FIBRE BACKS. GERMAN SILVER SPRINGS.
ROUND PUSHES. LOOSE BACKS.

No. 11784.

No. 11785.



No. 11786.

Code Word.	List No.	Finishes.	List Price, per Gross.
Zabudub	11784	A. E.	$18.00
Zabuduc	11785	A. E.	18.00
Zabudud	11786	A. E. Y.	18.00

No. 11787.

No. 11788.

No. 11789.

Zabuduf	11787	A. E.	18.00
Zabudug	11788	A. E. Y.	18.00
Zabuduh	11789	E. Y.	18.00

No. 11790.

No. 11791.

No. 11792.

Zabuduk	11790	A. E. Y., Screw Cap	36.00
Zabudul	11791	A. E., Screw Cap	36.00
Zabudum	11792	A. E., Screw Cap	36.00

No. 11793.

ANTI-WOOD PUSH BUTTONS.

All objectionable features known in Wood Pushes are overcome. No cracking, warping, sticking or swelling, as in wood pushes. No bad threading to lose your temper on. Made in three finishes only. Red Bronze Plated, called 3/0 finish; Polished Bronze Plated, called 4/0 finish, and Antique Copper Plated, called 8/0 finish. Packed 25 in a box; 1000 in a case.

				Per 100.
Zabudun	11793	3-0	Red Bronze Plated	7.00
Zabudup	11794	4-0	Polished Bronze Plated	9.00
Zabudur	11795	8-0	Polished Oxidized Copper	9.00

PUSH BUTTONS.

WROUGHT BRONZE PUSH BUTTONS.

COMPOSITION CENTERS. HARD FIBRE BACKS. GERMAN SILVER SPRINGS.

No. 11778.

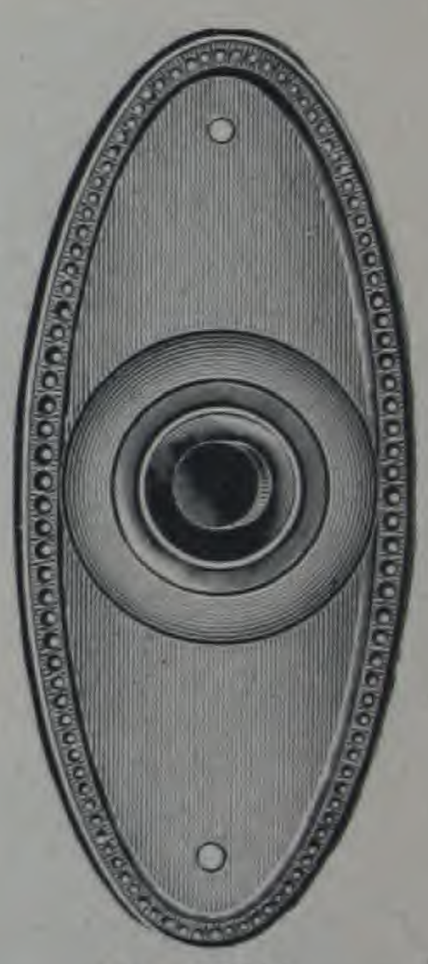
No. 11779.

No. 11780.

Code Word.	List No.	Finishes.	List Price, per Gross.
Zabudov	11778	A, E	$40.00
Zabudow	11779	A, E	40.00
Zabudox	11780	A, E, Y	40.00

No. 11781.

No. 11782.



No. 11783.

Zabudoy	11781	A, E	40.00
Zabudoz	11782	A, E, Y	40.00
Zabudu	11783	A, E, Y	40.00

PUSH BUTTONS.

WROUGHT BRONZE PUSH BUTTONS.

COMPOSITION CENTERS. HARD FIBRE BACKS. GERMAN SILVER SPRINGS.

No. 11770.

No. 11771.

No. 11772.

Code Word.	List No.	Finishes.	List Price, per Gross.
Zabudok	11770	A, E	$40.00
Zabudol	11771	A, E, Y	40.00
Zabudom	11772	A, E, Y	40.00

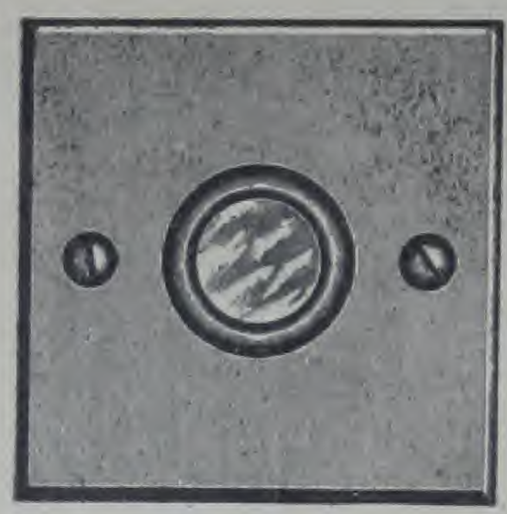
No. 11773.

No. 11774.

No. 11775.

Zabudon	11773	A, E	40.00
Zabudop	11774	A, E, Y	40.00
Zabudor	11775	Doctors' Bell	54.00
Zabudos	11776	Janitor Bell	54.00
Zabudot	11777	Night Bell	54.00

PUSH BUTTONS.



No. 22335.

NO. 18 METAL PLATE PUSH.

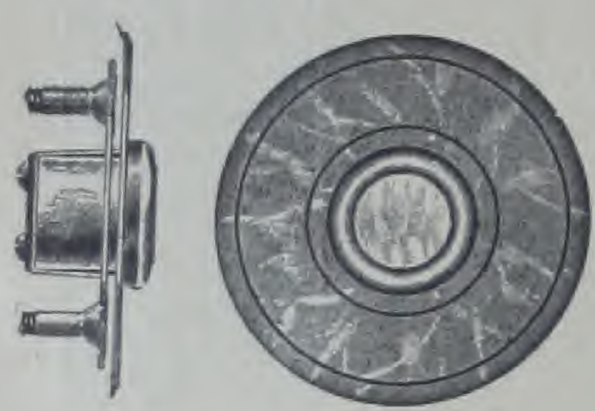
NICKEL.

Size 1¾x1¾ in.

A metal plate fitted with our desk plush. Unless it is stated that screw holes are desired in corners, orders are filled with plates having holes in position shown in cut, and with white pearl pushes.

Plates are made on special order to correspond in size with electric light switches.

Code Word.	List No.		List Price, Each.
Zabokos	22335	.....	$0.36



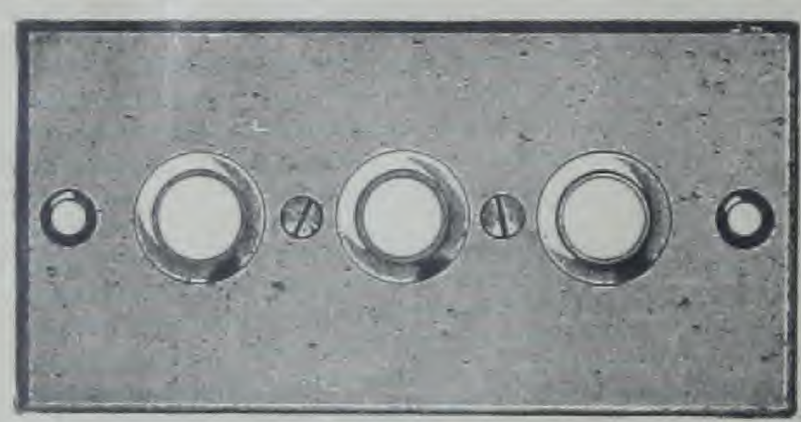
No. 22556.

ROUND "PEARL FACE" PUSH.

Size 1¾ in.

A handsome white plate of mother-of-pearl, fitted with a bronze-finished desk push. It is fastened to the wall so that no screws show on face-plate.

Zabosuz	22556	.....	.90



No. 11987.

NO. 15 METAL PLATE PUSH.

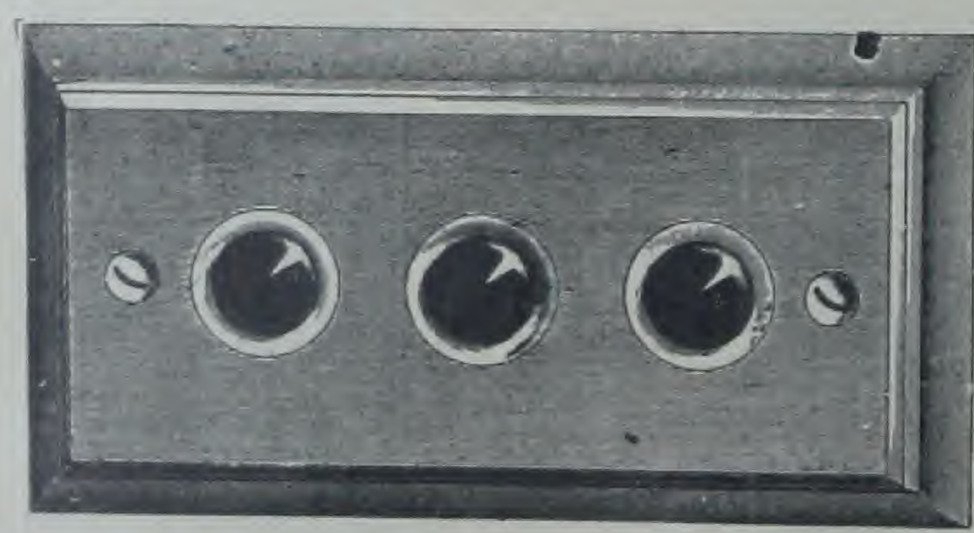
NICKEL PLATED.

Width 2 in.

This push can be lettered or numbered by stamping, or by hand engraving. Unless otherwise requested we use former method, assuming that the push is to be used in a horizontal position. When stamped to be used perpendicularly, special work is required.

Wood mats can be furnished for this push.

Zabugop	11986	2 button	.55
Zabugor	11987	3 button	.70
Zabugos	11988	4 button	.85
Zabugot	11989	5 button	1.00
Zabugov	11990	6 button	1.20
Zabugow	11991	8 button	1.60



No. 11994.

STYLE "E" PUSH.

2½ in. in width.

These pushes are designed for bell and annunciator calls and are made similar to the "D" Key. They are also made in same kinds of woods.

Zabugox	11992	1 button.....	.35
Zabugoy	11993	2 button.....	.55
Zabugoz	11994	3 button.....	.70
Zabugu	11995	4 button.....	.85
Zabugub	11996	5 button.....	1.00
Zabuguc	11997	6 button.....	1.20
Zabugud	11998	8 button.....	1.60
Zabuguf	11999	10 button.....	2.00

WOOD MATS.

FOR NO. 15 PUSH.

Regular Finish, Oak. Special finishes charged for according to quantity ordered.

Zabugug	12000	2 button.....	.24
Zabuguh	12001	3 button.....	.30
Zabuguk	12002	4 button.....	.40
Zabugul	12003	5 button.....	.50
Zabugum	12004	6 button.....	.60

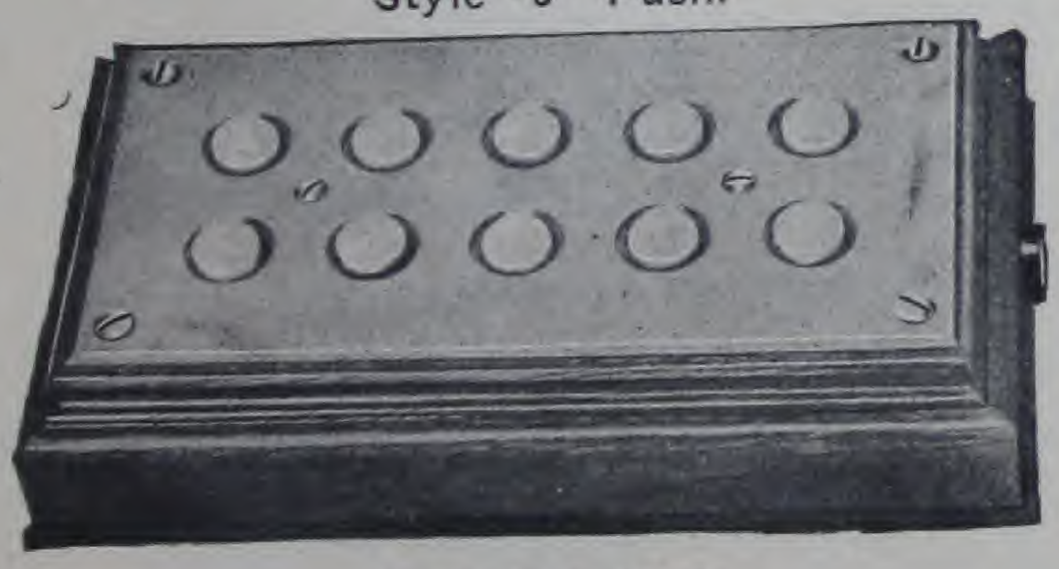
COMPOUND PUSHES.

Style "N" Push Numbered.
Style "L" Push Named.

Style "O" Push Numbered.
Style "P" Push Named.

Style "F" Push.

Size of 12 Button Push, 6x1¾x1⅜ In.
Style "J" Push.



Style "G" Push.

STYLE "N."

Numbered Escutcheons. Golden Oak.

Code Word.	List No.		List Price, Each.
Zacegi	17745	2 button, 2½x4	$0.70
Zacegib	17746	3 button, 2½x5	.90
Zacegic	17747	4 button, 2½x6	1.05
Zacegid	17748	5 button, 2½x6	1.20
Zacegif	17749	6 button, 2½x7	1.40
Zacelal	17921	Each additional button	.20

STYLE "L."

Named Escutcheons. Golden Oak.

Zacegig	17750	2 button, 2½x5	.85
Zacegih	17751	3 button, 2½x5	1.05
Zacegik	17752	4 button, 2½x6	1.20
Zacegil	17753	5 button, 2½x7	1.45
Zacegim	17754	6 button, 2½x8	1.70
Zacelam	17922	Each additional button	.25
Zacegin	17755	Lettering, per letter	.03

STYLE "O."

Weighted Push. Inclined Face. Felt Base. Numbered Escutcheons. Finished to Order. Prices on Application.

STYLE "P."

Weighted Push. Inclined Face. Felt Base. Named Escutcheons. Finished to Order. Prices on Application.

STYLE "F."

Weighted Push. Felt Base. Oak Finish.

Zacegip	17756	2 button	2.60
Zacegir	17757	3 button	2.70
Zacegis	17758	4 button	2.80
Zacegit	17759	Each additional button	.20
Zacegiv	17760	Extra for flexible cord, per conductor foot	.04

List prices do not include engraving on pearl buttons, painting over buttons, or cost of bushing.

STYLE "J."

Weighted Push. Felt Base. Oak Finish.
(Smallest compound push made.)

Zacegiw	17761	2 button	3.00
Zacegix	17762	3 button	3.20
Zacegiy	17763	4 button	3.40
Zacegiz	17764	Each additional button	.30
Zacego	17765	Extra for flexible cord, per conductor foot.	.04
Zacegob	17766	Lettering, per letter	.03

Made with name escutcheons only, which can be numbered or lettered. Price does not include stamping or cost of bushings.

STYLE "G."

Weighted Push. Metal Plate. Mounted on Oak Mat, with Felt Base.

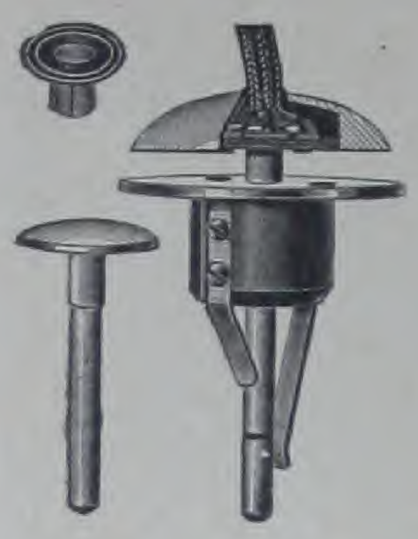
Zacegoc	17767	2 button	2.60
Zacegod	17768	3 button	2.70
Zacegof	17769	4 button	2.80
Zacegog	17770	Each additional button	.20
Zacegoh	17771	Extra for flexible cord, per conductor foot.	.04

Cost prices do not include engraving on pearl buttons, stamping over buttons, or cost of bushings.

Styles "F," "G," "L" and "N" can be shipped in a few days.
Styles "J," "O" and "P" require about one week.

THE "DANDY" FLOOR PUSH.

Patented.



Cap cut away, showing connection

All the weak points found in ordinary Floor Pushes have been eliminated in this new push, and points of excellence added which make it the most efficient ever produced. Its special advantages are that it is impossible to break the top, for owing to its rounding shape it allows a table leg coming in contact with it to roll over it without doing any damage.

If the cord is pulled hard it will not break the small conducting wires, because a knot can be made in the flexible cord under the cap, or our special cord used, as shown in the illustration.

Only one hole is required in the floor plate for both plugs, which in use pass through an eyelet that has been pressed through and easily fastened in the carpet or rug without breaking the strands. The eyelet used in the rug enables one to easily find the floor-push plate when the rug is replaced after cleaning. The portion inserted in the floor is securely held, as it exactly fills the hole. The distance between floor plate and top is adjustable, and a rubber bushing is used where cord passes through the cap.

Code Word.	List No.		List Price, Each.
Zugik	45722	Including plugs and eyelet	$1.20

"DANDY" EYELET TOOL.

No. 45723. Full size.

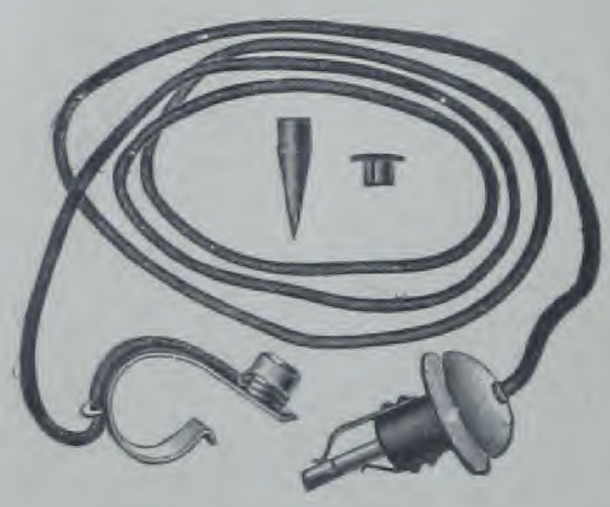
The eyelet used with floor push illustrated above can be easily inserted in rugs or carpets with this tool without breaking the strands.

Zugil	45723		.10

"DANDY" FLOOR-PUSH OUTFITS.

These outfits are fitted complete, and with each outfit are packed two eyelets and an eyelet tool. They unquestionably constitute the highest type of electric dining table calls.

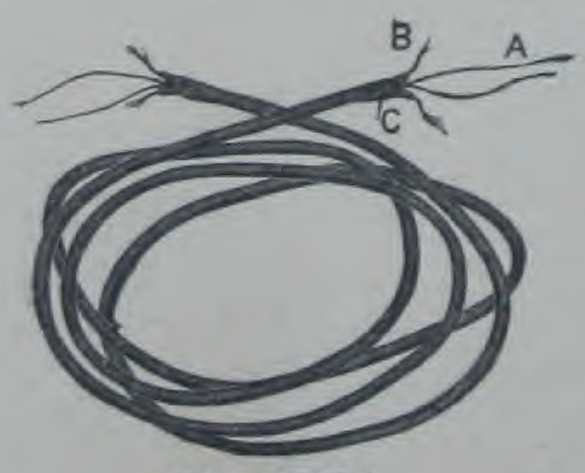
Maroon cord sent unless otherwise ordered.



No. 45724.

Zugim	45724	No. 1. With Table Clamp and 2 yards of Dandy Cord	2.50
Zugin	45725	No. 2. With Table Clamp and 3 yards of Dandy Cord	2.80
Zugip	45726	No. 3. With Fancy Pear Push and 2 yards of Dandy Cord	2.50
Zugir	45727	No. 4. With Fancy Pear Push and 3 yards of Dandy Cord	2.80
Zugis	45728	No. 5. With Movable Foot Push and 2 yards of Dandy Cord	2.50
Zugit	45729	No. 6. With Movable Foot Push and 3 yards of Dandy Cord	2.80

"DANDY" FLOOR-PUSH CORDS.

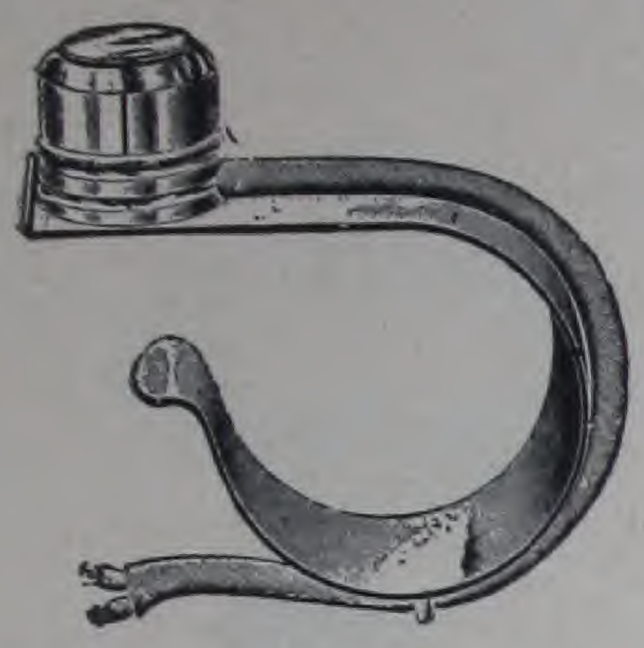


No. 45730.

These cords are made to withstand wear. The covering is braided silk, not floss, and to each end of the cord is fastened a strong piece of twine, "A," knotted at "C," which admits of its being fastened to a screw to prevent the breakage of the conductors, "B."

Zugiv	45730	2-yard lengths	.60
Zugiw	45731	3-yard lengths	.90

TABLE CLAMPS.



Code Word.	List No.		List Price Each.
Zukod	**45916**	Nickel plated, without cord, with pearl center push button	**$0.60**

FLOOR PUSHES.

No. 45918.

No. 45919.

PLAIN FLOOR PUSH.

Plate, 2 Inches in Diameter.

Zukog	45918	Nickel plated.	.40

COMBINATION FLOOR PUSH.

Plate, 2 Inches in Diameter.

Zukoh	45919	Combination floor push..... ...	.60
Zukok	45920	Combination floor push, fitted with two yards silk cord and plain pear push ...	1.00
Zukol	45921	Combination floor push, fitted with cord and table clamp	1.25
Zukom	45922	Combination floor push, fitted with cord and foot push.....	1.35

DANDY FLOOR PUSH.

Zukon	45923	Including plugs and eyelets.....	1.20
Zukop	45924	Combination floor push, including Dandy floor push, two yards special cord and a fancy pear push connected up	2.50

FOOT PUSHES.

No. 45925.

MOVABLE FOOT PUSH.

Base, 3 Inches in Diameter.

Can be easily moved from place to place, and the cord is not liable to be broken. The metal portion of the push is nickel plated, and mounted on a finely finished wood base. It is very easy to connect up.

Zukor	45925	... .	.70

No. 45926.

DAISY FLOOR TREAD.

Designed to use under Rug or Carpet, and Requires no Holes.

Zukos	45926	.....	1.50

PUSH BUTTONS.

PEAR PUSHES.

No. 22327.

No. 22328.

No. 22329.

Code Word.	List No.	Mfr. No.		List Price, Each.
Zabokog	22327	1	Plain Pear Push, 3 inches long	$0.25
Zabokoh	22328	2	Celluloid Pear Push, 2¾ inches long	1.00
Zabokok	22329		Fancy Pear Push, 3½ inches long	.36

No. 22334.

DOUBLE CONTACT BARREL PUSH.

2¾ In. Long.

This Push may be used for electric gas lighting. It has a white desk push at one end and a black one at the other. Different shaped push button centers enable a selection of the proper button in the dark.

Mahogany in Stock.

Zabokor	22334		.70

No. 12550.

Size 1½x2 in.

ATHENS PEAR PUSH.

The only practicable Multiple Pear Push on the market. Made in two pieces, permitting easy access to connections. Shell of metal and furnished in brush brass finish; can be finished to match any hardware at slight extra cost. Cord hole bushed with insulator. May be engraved (not stamped).

Approximate price for engraving, .05 per letter.

Minimum charge for engraving, .25 net.

Zabunul	12547	1	Button, each, list	1.00
Zabunum	12548	2	Button, each, list	1.60
Zabunun	12549	3	Button, each, list	1.90
Zabunup	12550	4	Button, each, list	2.20
Zabunur	12551	5	Button, each, list	2.50

NAME PLATE PUSHES.

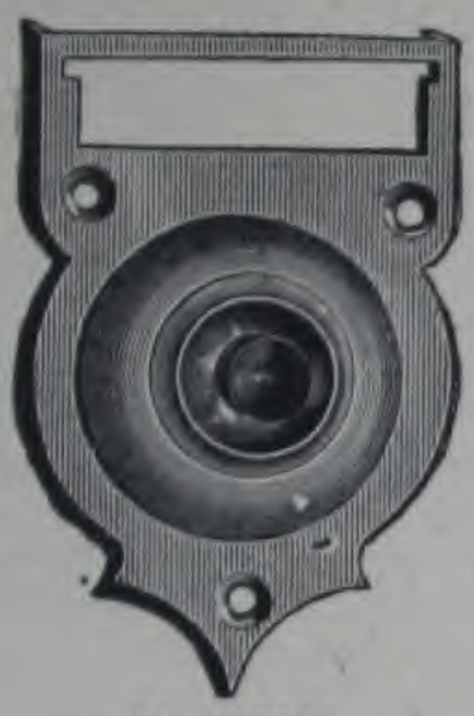
No. 22228.

NO. 21, NICKEL.

SIZE, 2¾x3½ INCHES.

Fitted with Desk Push and isinglass for Card Rack.

Code Word.	List No.		List Price. Each.
Zabohok	22228	.....	$ .40
Zabohol	22229	Stamped with figure.....	.46



No. 22230.

NO. 23, LIGHT AND DARK BRONZE.

SIZE, 3¼x2 INCHES.

Zabohom	22230	.....	.44

A. and E. finish.

No. 22231.

NAME PLATE.

Zabohon	22231	102	Size, 2⅜x¾ inches..	.10
Zabohop	22232	103	Size, 3⅛x¾ inches..	.12

Name Plates listed below are furnished with a celluloid strip for covering cut.

No. 22233.

NO. 1.

Brass.

Zabohor	22233	Size, 1½x $\frac{5}{16}$ inches.....	.04

No. 22234.

NO. 2.

Nickel Plate.

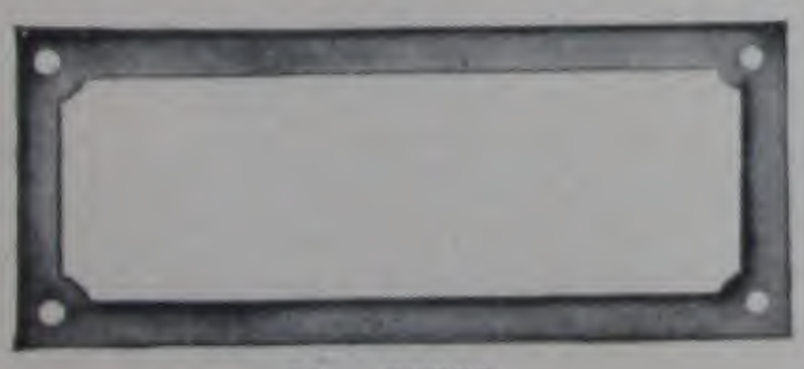
Zabohos	22234	Size, 1$\frac{3}{16}$x$\frac{5}{16}$ inches.....	.06

No. 22235.

NO. 3.

Nickel Plate.

Zabohot	22235	Size, 2$\frac{11}{16}$x$\frac{3}{16}$ inches.....	.08



No. 22236.

NO. 4.

Nickel Plate.

Zabohov	22236	Size, 2½x1 inches.....	.10

SWITCHES.

SWITCHES.

STYLE "A" WOOD BASE SWITCH.

No. 45690

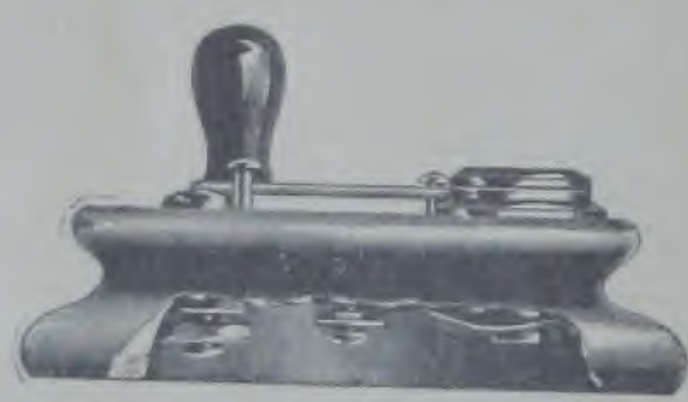
Cut full size.

This style of switch we make on honor. Its thickness stops tendency to warp and gives room for a No. 16 wire between the connecting nuts. The arm and points are well nickel plated, and the spring clip, shown in cut, does not allow the arm to loosen.

The slight advance in price over style "B," when a perfect contact during the life of the switch is guaranteed, makes cheap insurance.

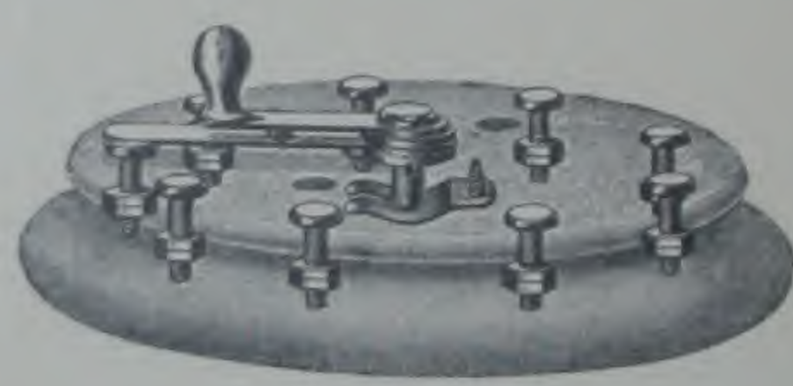
Code Word.	List No.		List Price, Each.
Zugan	45689	1-point	$0.24
Zugap	45690	2-point	.28
Zugar	45691	3-point	.34
Zugas	45692	4-point	.40
Zugat	45693	5-point	.48
Zugav	45694	6-point	.52

THE POSITIVE CONTACT SWITCH.



Cut showing spring clip.

This switch is designed for telephone use or where an absolute positive contact is required. It is made with two arms which travel together, the lower one being operated by the upper. A pin projects from the under side of the latter and loosely engages, through a hole, the lower arm. This permits the upper arm to control the lower, and insures a positive contact on the switch point. By the use of a spring clip a positive contact is secured at the arm bolt. A switch made in this manner has marked advantages over the common single-arm switch, which is liable to become bent, causing it to make an imperfect contact with the switch point.



No. 45698.

Zugaw	45695	5-point	$1.00
Zugax	45696	6-point	1.10
Zugaz	45697	7-point	1.20
Zuge	45698	8-point	1.30
Zugeb	45699	10-point	1.50
Zuged	45700	15-point	2.00
Zugef	45701	20-point	2.50

This price includes stamping one or two figures or letters on the wood base at each switch point, when desired.

SWITCHES.

WOOD SWITCHES.

Wood Switches made in Ash, Oak, Cherry and Walnut.

ROUND WOOD.

No. 9614.

Code Word.	List No.		List Price Each.
Pagorum	9614	1 point, 2¼ inches diameter	$ .18
Pagotines	9615	2 point, 2¼ inches diameter	.20
Pagurian	9616	3 point, 2¼ inches diameter	.22
Pagurianos	9617	4 point, 2¼ inches diameter	.24
Paguridal	9618	5 point, 2¼ inches diameter	.32
Paharia	9619	6 point, 2¼ inches diameter	.36

ROUND RUBBER SWITCHES.

No. 9620.

Pahouin	9620	1 point, 2⅝ inches diameter	.76
Paideutics	9621	2 point, 2⅝ inches diameter	.78
Pailebote	9622	3 point, 2⅝ inches diameter	.80
Pailfuls	9623	4 point, 2⅝ inches diameter	.82
Pailleule	9624	5 point, 2⅝ inches diameter	1.22
Paillis	9625	6 point, 2⅝ inches diameter	1.24

KEYSTONE POLISHED RUBBER.

No. 9626.

Painelas	9626	1 point, 2 inches long	.60
Painful	9627	2 point, 2 inches long	.65
Painstaker	9628	3 point, 2 inches long	.70
Painterly	9629	4 point, 2 inches long	.72

WOOD AND RUBBER BASE SWITCHES.

WITH BINDING POSTS.

No. 9630.

Paintless	9630	Wood Base, 1 point	.55
Paisibles	9631	Wood Base, 2 point	.65
Paisselage	9632	Wood Base, 3 point	.75
Paitrais	9633	Wood Base, 4 point	.85
Pajanelie	9634	Rubber Base, 1 point	1.00
Pajara	9635	Rubber Base, 2 point	1.20
Pajarillos	9636	Rubber Base, 3 point	1.40
Pajeaba	9637	Rubber Base, 4 point	1.60

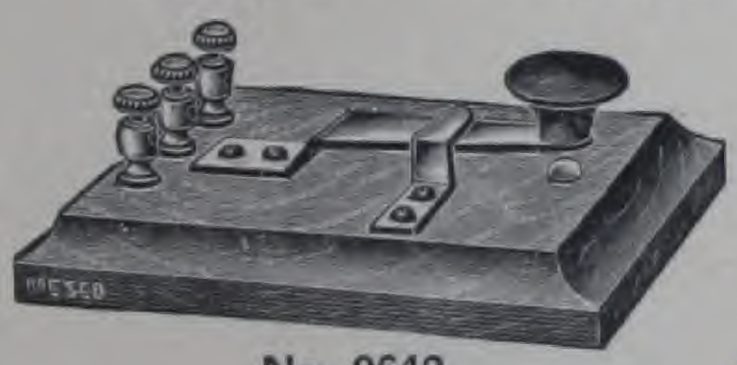
POLE CHANGING SWITCHES.

No. 9638.

All parts made of brass, nickel-plated. Polished rubber knobs.

Pajeabamos	9638	Rubber Base, with binding posts	1.65
Pajeadas	9639	Rubber Base, no binding posts	1.40
Palomis	9640	Wood Base, with binding posts	1.05
Pandation	9641	Wood Base, no binding posts	.80

STRAP OR SIGNAL KEYS.

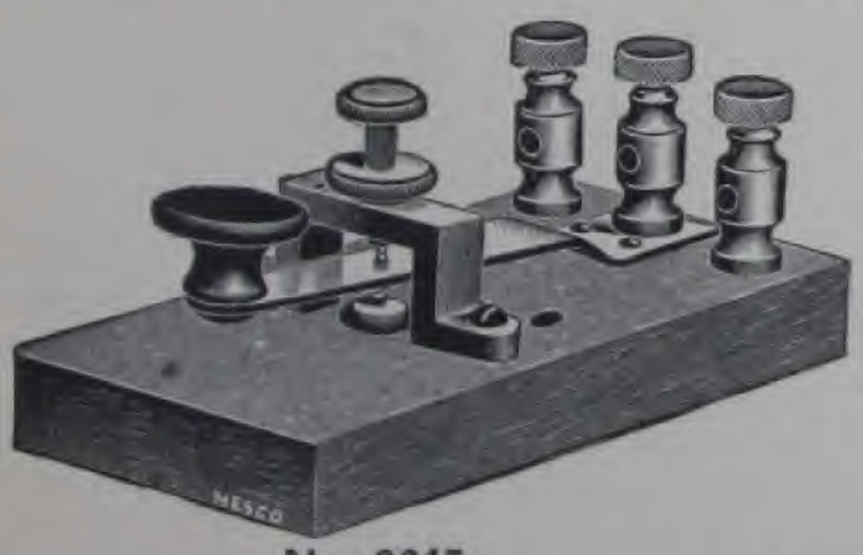


No. 9642.

Open and closed circuit keys have two binding posts. Double circuit has three posts.

Pandatorum	9642	Open Circuit, Walnut or Oak Base	.65
Pandaturam	9643	Closed Circuit, Walnut or Oak Base	.60
Pandavero	9644	Double Circuit, Walnut or Oak Base	.75

RAILROAD STRAP AND SIGNAL KEY.



No. 9645.

For Telegraph and Block Signal Work.

Made Extra Heavy. Platinum Points.

Pandeaste	9645	Open Circuit	1.00
Pandemia	9646	Closed Circuit	1.00
Pandemico	9647	Double Circuit	1.25

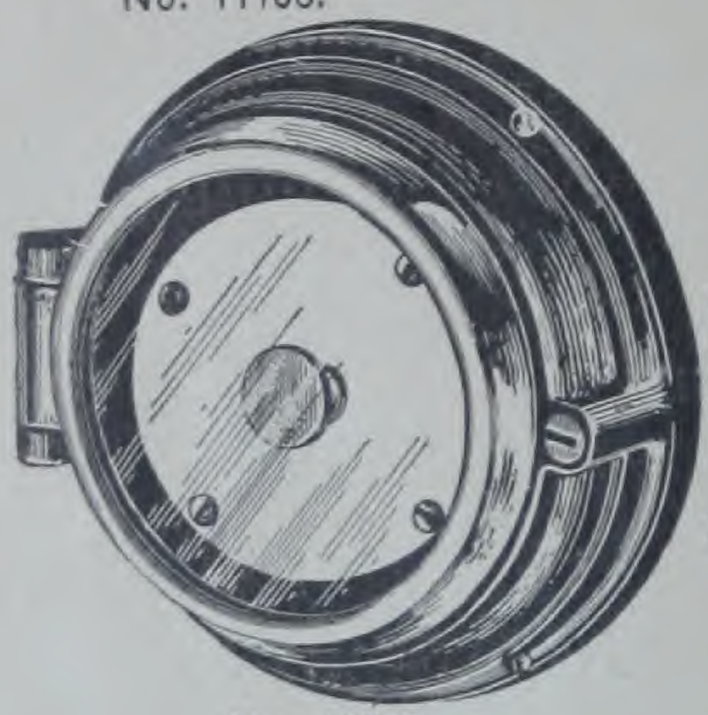
FIRE ALARM APPARATUS.

No. 11103.

STYLE "A" FIRE ALARM BOX.

This device is used in hotels and factories to give notice in case of fire. All that is necessary is to break the glass with the hammer. The contact spring, which is held in place by the glass, is then released, closing the circuit and immediately giving the signal at some central point. The case of the box is of brass, nickel plated; the hammer is solid iron, and steel jack chain is used to attach hammer to the box.

Code Word.	List No.		List Price. Each.
Zabovuh	11103	Box only	$0.75
Zabovuk	11104	Hammer	.25


No. 11105.

STYLE "C" TEST BOX.

This style of box has many advantages over other methods of fire alarm. In case of fire break the glass and push the button. This insures an effective alarm. Neatly mounted and compact.

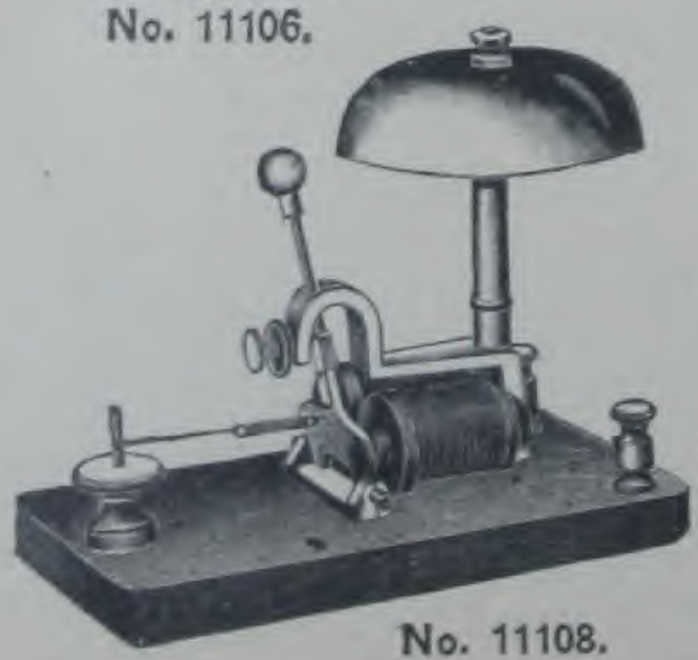
Zabovul	11105		2.50

No. 11106.

STYLE "B" FIRE ALARM BOX.

This Fire Alarm Box has a well finished iron case, and is fitted with a strong spring. Its use is applicable for private or small fire alarm systems and in signal systems. For outside use this box is enclosed in a larger or so-termed "street box," which is furnished with a Yale lock.

Zabovum	11106	Box only	7.00
Zabovun	11107	Box and outside box	16.00


No. 11108.

DISTRICT CALL BELL.

New design. Special improvements. The best district signal bell made. Mounted on a polished mahogany base.

Zabovup	11108	3-inch	2.50
Zabovur	11109	6-inch	3.00

BINDING POSTS.

No. 11820.

No. 11821.

No. 11822.

Code Word.	List No.	Style.	List Price, Each
Zabufax	11820	E	$0.08
Zabufay	11821	B	.08
Zabufaz	11822	D	.07

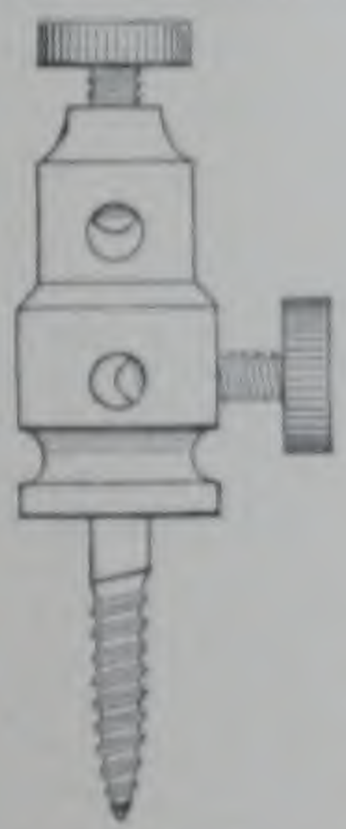
No. 11823.

No. 11824.

No. 11825.

Zabufe	11823	C	.08
Zabufeb	11824	H	.12
Zabufec	11825	A	.12

No. 11826.



No. 11827.

No. 11828.

Zabufed	11826	K	.10
Zabufef	11827	F	.25
Zabufeg	11828	J	.20

No. 11829.

CONNECTORS.

Zabufeh	11829	G	.10

THE STYLE K BINDING POST WILL NOT TURN.

DOOR AND WINDOW SPRINGS.

OPEN CIRCUIT DOOR SPRING.

No. 45702

The contacts scrape themselves clean, ensuring a positive connection.

Size of front plate, ⅝"x2".

Code Word.	List No.	Mfr. No.	List Price, Each.
Zugeg	45702	34	$ .18

MAKE AND BREAK DOOR SPRING.

No. 45703

For use on store doors, etc.

Contact is made as the door opens and as it shuts, but not while it is open or shut.

Size of front plate, ⅝"x2".

Zugeh	45703	38	.18

No. 45704.

HEAVY WINDOW SPRING.

Heavy nosing and strong springs with rubbing contact.

Size of plate, ⅝"x3⅜".

Can be arranged for open or closed circuit.

Zugek	45704	30	.20

No. 45705.

WINDOW SPRING.

Good rubbing contact. Phosphor bronze springs. Being small, it is easily applied.

Size of plate, 2⅜"x1½".

Zugel	45705	28	.18

No. 45706.

ADJUSTABLE BELL-PULL ATTACHMENT.

This is a simple and easily applied adjustable attachment, and can be fitted to any door-pull. It consists of a spring, a brass and two rubber bushings. A screw in the brass bushing, shown in the cut, holds the attachment in place. The springs in their normal position rest on the small rubber bushing, but in operation the brass bushing is drawn between them and the circuit closed. One of its great advantages is that the hole in the casing needs to be enlarged but a trifle over that made for the regular pull.

Zugem	45706		.50

No. 45707.

MECHANICAL BELL-PULL ATTACHMENT.

Designed for connecting a mechanical door-pull to ring an electrical bell. It can be attached without displacing the bell-pull already in use, and may be arranged to operate both the mechanical and electrical bells.

Zugen	45707		.50

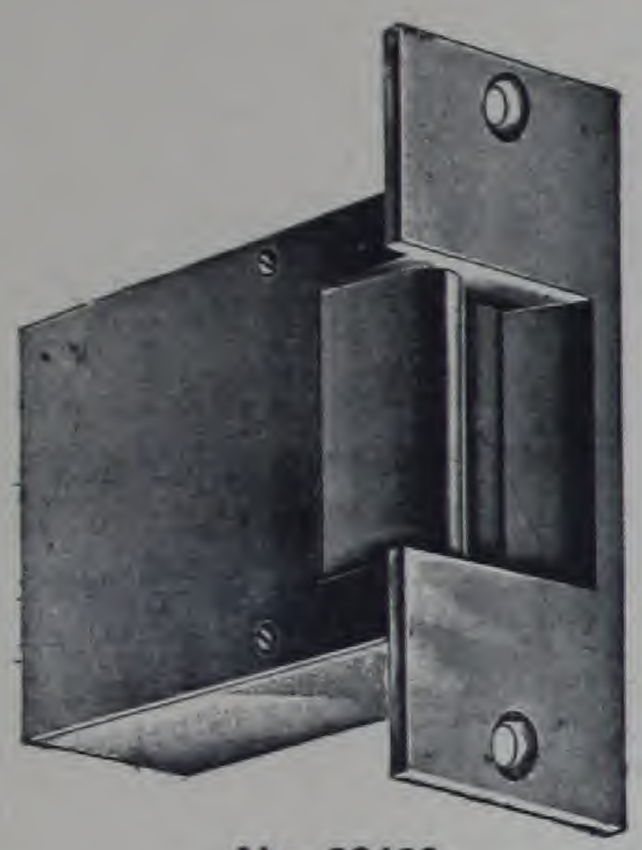
DOOR OPENERS.

No. 22428.

SCHNEIDER DOOR OPENER.

Mortise space, 2x⅞x3¾ inches.
Face plate, 5¾x1¾ inches.

Code Word.	List No.		List Price, Each.
Zaboloh	22428	Mortise	$2.50
Zabolok	22429	Rim	4.50

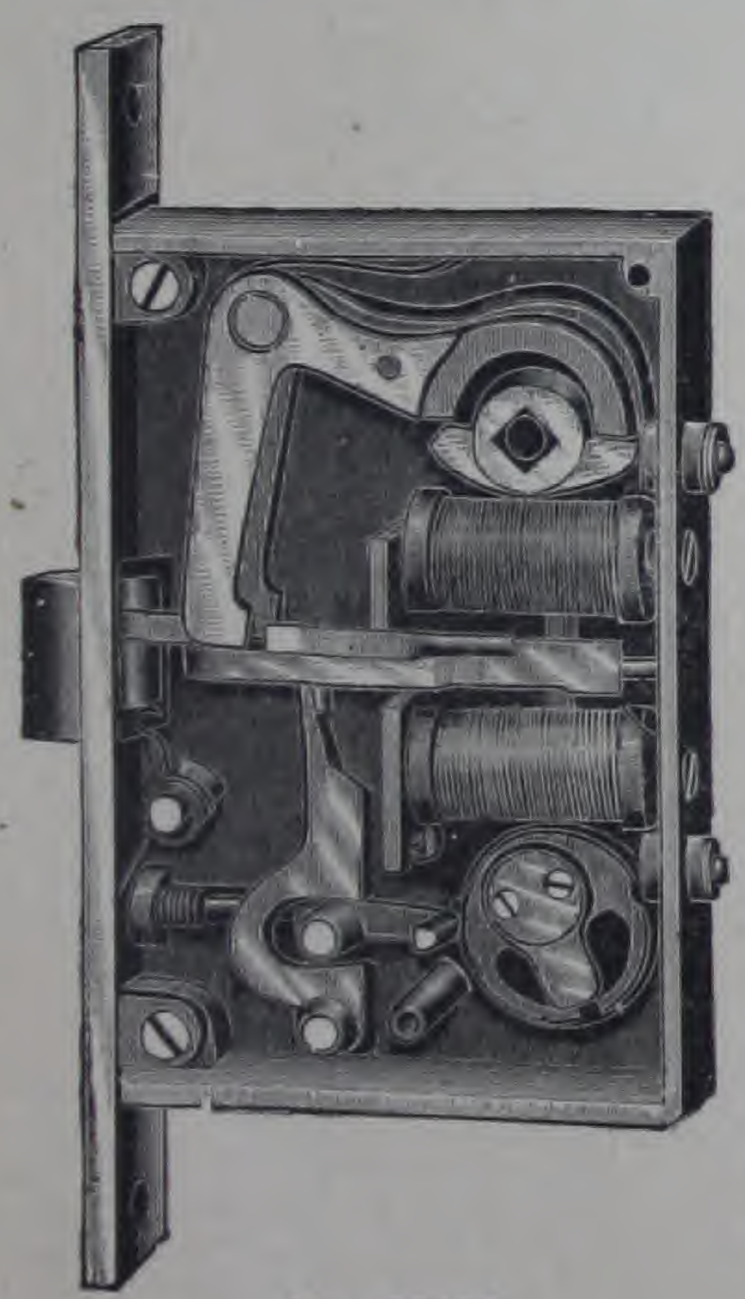


No. 22430.

NO-JAR DOOR OPENER.

Same as above with roller in nosing.

Zabolol	22430		2.50
Zabopat	12552	With longer front plate for dead bolts, right or left hand	3.50



No. 22432.

EDWARD'S RIM DOOR OPENER.

For use with surface or rim locks on thin doors, iron gates, etc. The case is japanned iron.

Zabolom	22431		3.10

P. AND T. ELECTRIC LOCK.

This lock can be so constructed that it will lock instead of unlock the latch, which makes it especially applicable for use with bank doors. No extra charge for this attachment.

The superiority of this lock rests in the fact that it possesses all the advantages of electric locks now on the market, and the following additional points of excellence to be found in no other, which are: That either the Yale, Harvard or Sargent cylinder locks, acknowledged to be the best in the world, can be used in connection with this device, also that both knobs are released by closing the electric circuit, making the lock especially adapted for use on office doors.

Zabolon	22432		11.00

WIRES AND CABLES

ANNUNCIATOR WIRE.

Insulated with two winds of cotton yarn applied in opposite directions, saturated with our special wax compound, and highly polished. This makes a very compact insulation. Furnished either on spools containing about 8 pounds or exactly 1 pound, and packed in cases containing approximately 200 pounds. Furnished in the following colors:

Red.	**Brown.**	**Olive.**
Blue.	**White.**	**Yellow.**
Red and White.		**Blue and White.**

Sizes not marked (*) carried in stock.

Code Word.	List No.	Size B. & S. Gauge.	Approx. Pounds per 1,000 ft.
Zabekez	49909	*14	15.
Zabeki	49910	16	9.50
Zabekib	49911	18	6.50
Zabekid	49912	20	4.50

DAMP-PROOF OFFICE WIRE.

This wire is double wound and braided, the two winds of cotton yarn applied in opposite directions, saturated with our regular black weatherproof compound.

The braid is specially treated with wax, highly polished, and will not collect dust. Office wires are carried regularly in the following colors:

Red. **Red and White.** **Blue.** **Blue and White.**

Sizes 16 and 18 in red and white are also carried in a duplex wire, being two separately insulated conductors under one braid.

Sizes not marked (*) carried in stock.

		Size B. & S. Gauge.	Approx. Pounds per 1,000 ft.	In cases containing approximately 200 pounds. No. Coils.	Weight Each.	No. Spools.	Weight Each.
Zabekif	49913	*12	34.	8	25	20	10
Zabekig	49914	14	24.	12	17	20	10
Zabekih	49915	16	13.50	12	17	20	10
Zabekik	49916	18	10.	12	17	20	10
Zabekil	49917	*20	8.	12	17	20	10

PLAIN OFFICE WIRE.

Furnished in same sizes and colors as Damp-Proof Office Wire on five pound spools.

Sizes not marked (*) carried in stock.

Zabekim	49918	*12	34.	8	25	20	10
Zabekin	49919	14	24.	12	17	20	10
Zabekip	49920	16	13.50	12	17	20	10
Zabekir	49921	18	10.	12	17	20	10
Zabekis	49922	*20	8.	12	17	20	10

Lowest Market Prices Quoted on Application.

WIRE AND CABLES.

OFFICE CABLES.

Our Office Cables will be found very desirable for all interior wiring, for which they are especially designed.

They are composed of No. 18 B. & S. Gauge copper wire, thoroughly insulated, compactly cabled and braided in any desired color or combination of colors, and finished with our patent compound.

Code Word.	List No.	Approximate Number of Feet per Pound of Office Cables, No. 18 Conductor.			Code Word.	List No.	Approximate Number of Feet per Pound of Office Cables, No. 18 Conductor.		
Zutan	46418	2	Conductors.....	60	Zuteb	46428	22	Conductors.....	6
Zutap	46419	4	"	26	Zuted	46429	24	"	5½
Zutar	46420	6	"	20	Zutef	46430	26	"	5
Zutas	46421	8	"	16	Zuteg	46431	30	"	4½
Zutat	46422	10	"	13	Zuteh	46432	34	"	4
Zutav	45423	12	"	11	Zutek	46433	38	"	3¾
Zutaw	46424	14	"	10	Zutel	46434	40	"	3½
Zutax	46425	16	"	9	Zutem	46435	46	"	3
Zutaz	46426	18	"	8	Zuten	46436	50	"	2¾
Zute	46427	20	"	7	Zutep	46437	100	"	1½

Paraffined coverings always furnished unless otherwise ordered. For weatherproof covering add 25 per cent. to above weights.

PRICES QUOTED ON APPLICATION.

ELEVATOR ANNUNCIATOR CABLES.

This type of cable is designed for connecting the movable elevator car with the signal buttons upon the different floors and is constructed to secure the greatest amount of strength and flexibility.

			List Price, Per ft.
Zuter	46438	2 Conductors	.16
Zutes	46439	3 Conductors	.16
Zutet	46440	4 Conductors	.16
Zutev	46441	5 Conductors	.20
Zutew	46442	6 Conductors	.24
Zutex	46443	7 Conductors	.28
Zutez	46444	8 Conductors	.32
Zuti	46445	9 Conductors	.36
Zutib	46446	10 Conductors	.40
Zutid	46447	11 Conductors	.44
Zutif	46448	12 Conductors	.48

ELECTRIC LIGHT ELEVATOR CABLE.

For connecting lights in elevator car. Composed of No. 16 Stranded conductor, rubber covered, and cabled to produce the greatest possible amount of flexibility.

			Per ft.
Zutig	46449	2 Conductors	.16
Zutih	46450	4 Conductors	.32

GAS FIXTURE WIRE.

On ½ lb. Spools.

STYLE A. Triple wound and paraffined.

		Mfr. No.	List Price, Per lb.
Zutik	46451	No. 22, in yellow only	$1.60
Zutil	46452	No. 24, in yellow, brown and white	1.80

STYLE B. 4-wind, inside silk.

Made with quadruple winding, the inner of silk and the three outer layers of cotton.

Zutim	46453	No. 22, in yellow only	2.00
Zutin	46454	No. 24, in yellow, brown and white	2.20

STYLE C. 3-wind, outside silk.

Made with three windings of cotton, which is then soaked with fireproof preparation and wound with silk.

Zutip	46455	No. 22, in gold only	2.00
Zutir	46456	No. 24, in gold and white	2.20

SABIN CABLE.

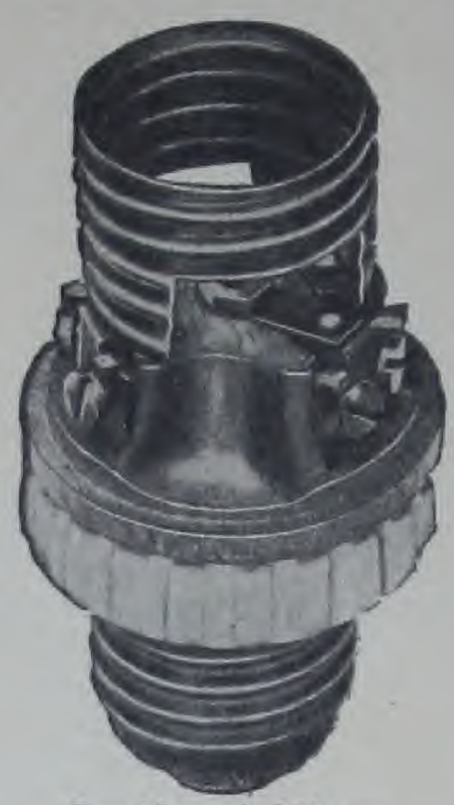
FOR AERIAL USE, OR FOR BUILDINGS WHERE EXPOSED TO DAMPNESS.

These Cables are usually made of No. 18 B. S. gauge wire, insulated with two compact winds of cotton saturated with our Patent Compound. After cabling, a wind of cotton is applied and the cable served with a double thickness of rubber tape. A heavy braid saturated with weatherproof compound serves as a further protection. This cable was designed to meet a demand for an outside cable of low cost, and while it is used successfully in some classes of work, we cannot recommend it for telephone or circuits of a delicate or exacting nature.

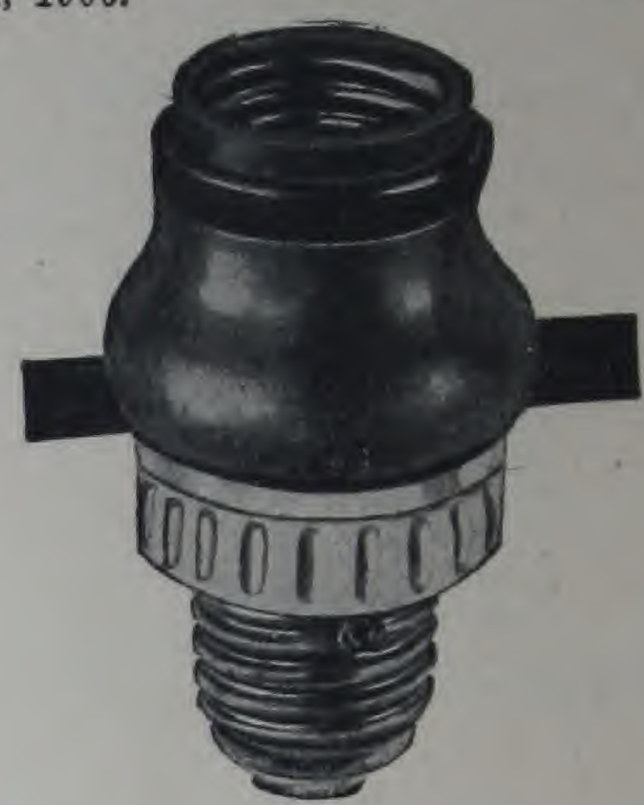
Zutis	46457	Price, per pound, all sizes	1.00

THE HOWES SWIVELING CURRENT TAP.

Patented July 31, 1906.



Sectional View.



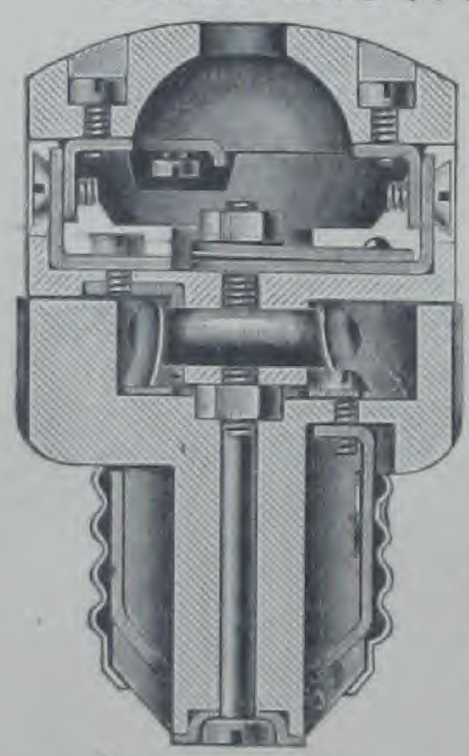
This "Current Tap" is a device which makes it possible to operate a fan, any of the many style of heating apparatus, or another lamp, from a fixture having but one lamp socket, and still retain the use of the ordinary lamp. There are many places where this device is advantageous, such as the bathroom, or in places where lights are widely distributed and more light is wanted where there is no fixture.

The lower portion of the Howes Swiveling "Current Tap" is similar to the Howes Swiveling Attachment plug in form and method of operation. The upper portion is made of a strong, well made block of porcelain, to which a metal shell with an insulated lining is fastened by an insulated socket ring. Either one or two cords can be attached to the device.

In using the device, the upper portion, to which the cord is attached, remains stationary, while the lower portion is screwed into the socket by means of the corrugated portion. The advantage secured is that the cord is not twisted, there is no strain upon the connections, which prevents breaking of the conductors, and no possibility of short-circuiting. The glass shade used on the ordinary fixture can be transferred to the socket of the current tap, and as the device will not be detached owing to a slight pull such as in other makes, there is no danger of breaking the lamp and shade.

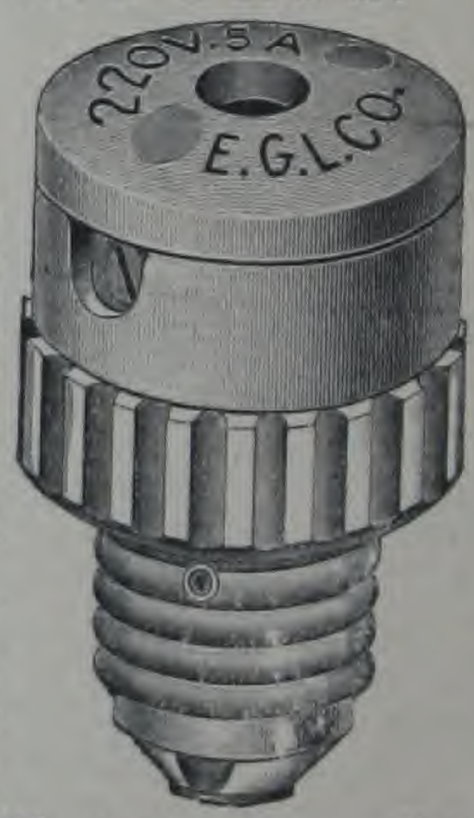
Code Word.	List No.		List Price, Each.
Zacenoh	18349	Edison Base only	$0.70
Zacenok	18350	In standard packages of 100	.63

THE HOWES SWIVELING ATTACHMENT PLUG.



Sectional View.

Patented August 15, 1899, and February 25, 1902.

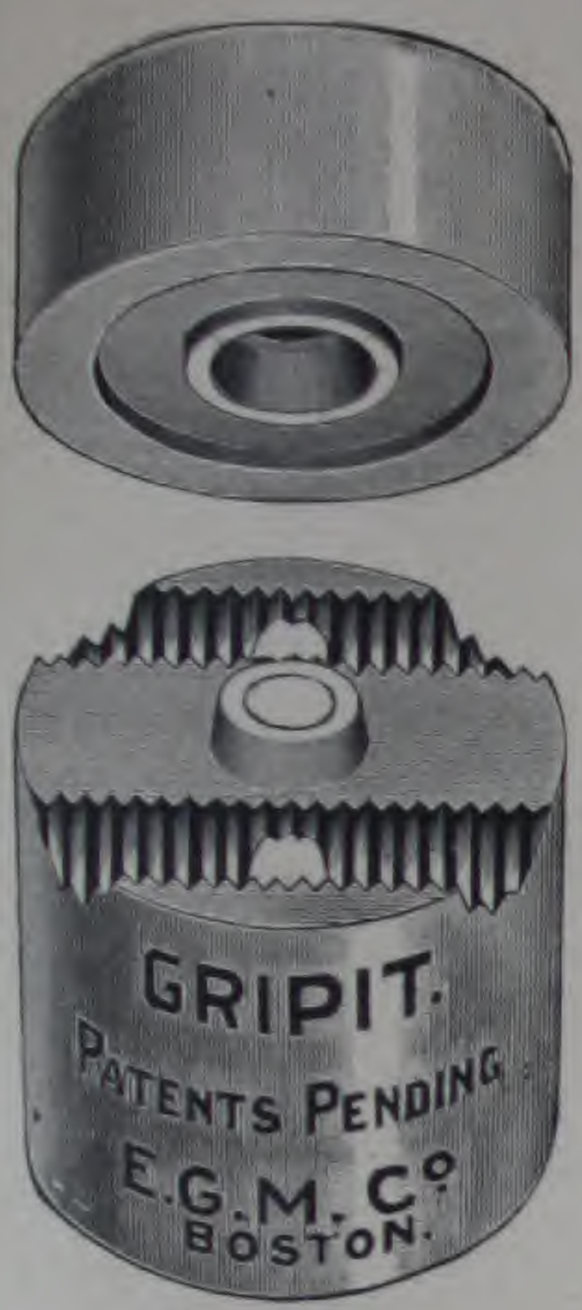


This device overcomes twisting the lamp cord where portable lamps are used. It consists of two parts, one in which the contacts are made, and a plug which is inserted in the socket, to which it can be attached by the use of one hand, the main portion being held in the palm of the hand while the corrugated plug is screwed in with the fingers.

The construction of the plug will be noted by reference to the sectional cut. The contact in the swiveling portion is made by means of a three-leaf copper spring. This assures perfect contact without sparking. Ten amperes have been carried on this plug without heating. The cover of the main portion of the plug is reinforced by a brass collar, which reduces the possibility of breakage and supports the parts, even after breakage has taken place. It has the advantage over other Attachment Plugs in that it is self-contained, and therefore does not require the transfer from one socket to another of one of the parts, as is the case with an attachment plug being manufactured, and, in addition, does not break connection from a slight pull, which is particularly advantageous when using long heavy cords. It is the only swivel plug approved by the National Board of Fire Underwriters. All other swivel plugs are an infringement on our patents.

Zacenol	18351	Edison Base only	.50
Zacenom	18352	In Standard Packages of 100	.45

WIRING KNOBS.



No. 18053.
Cut Full Size.

THE "GRIPIT" KNOB.

A radical departure and improvement in wiring knobs.
Any position of cap firmly secures wire.
Tie wire of any description unnecessary.
Will take Nos. 10, 12 or 14 rubber covered, weatherproof or similar wires.

The Gripit Knob is conceded to be the most practical wiring knob ever devised. Its main feature consists of a Universal Cap which contains a circular right angle channel, permitting the wire to be secured at any point of the cap's circumference, and by being jammed down over a "U" shaped hump located in the centre of the two wire channels in the top side of base of knob, forces the wire over said hump up into the channel on under side of the cap and forms a natural bend which securely holds the wire in place.

The labor-saving element of the Universal Cap will be appreciated when it is realized that with all other knobs on the market, their caps may be sent home in any position, which many times requires the breaking of the knob and cap to correctly install another insulator, due to the fact that the cap is driven on the wire in the wrong position and will not secure it.

The porcelain utilized in making the Gripit Knob is the best obtainable, and the knob is designed to meet the requirements of all inspection boards. They are put up in strings of 25 complete knobs to a string, and packed in barrels of approximately 2000 complete knobs.

Code Word.	List No.		List Price, per 1000.
Zacemey	18053	Glazed	$30.00
Zacemez	18054	Unglazed	26.00

No. 18055.

STAR OVAL KNOB.

This is a good knob which meets many requirements where a low-priced article is wanted. Put up on strings of 25 complete knobs to a string, and approximating 3000 complete knobs to a package.

Zacemi	18055	Glazed	20.00

B. AND B. WIRING KNOB.

A very popular knob which we can supply to advantage.

No. 45771.

Regular Style.

		Size R. C. Wire.	
Zuhab	45771	No. 10	26.68
Zuhad	45772	No. 4	28.50
Zuhaf	45773	No. 0	40.00

Style A.

Zuhag	45774	No. 10	33.34
Zuhah	45775	No. 4	35.00
Zuhak	45776	No. 0	50.00

Style A is one inch from wire to bottom of knob.

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INTERNATIONAL

CCA